5 Appendices

(Attached as separate document)

APPENDIX 5.1—CULTURAL RESOURCES

5.1.1 PREHISTORIC AND ETHNOGRAPHIC OVERVIEW

Robert Begole (1973, 1981) has advocated using the term "Malpais" to designate a Late Pleistocene/Early Holocene cultural pattern in the Colorado Desert and ABDSP that predates the San Dieguito Early Holocene (or Paleoindian) Period, based upon the results of archaeological survey work within the park. The term Malpais was first used by Malcolm Rogers of the San Diego Museum of Man in the 1930s but was subsequently abandoned by him as a cultural period. Begole (1973:32) argued for the reintroduction of this additional cultural period"…as the phase seems to be a very old gathering culture and somewhat different from the rest of the San Dieguito complex." Begole (1973:32) noted that the general location of "Malpais" sites and their artifacts differ from San Dieguito. Malpais sites are characterized by "bare circles" (i.e., cleared circles or house remains) that have been cleared from volcanic landscapes. The sites tend to be located above drainages that originate in higher elevations. Malpais sites occur both on flat, rolling terrain and a short distance up the side of a slope. Trails are a common feature at these sites. Vesicular basalt is the preferred raw material from which to manufacture artifacts and the knapping on Malpais artifacts is "rudimentary," according to Begole (1973:33,36). Simple flaked-stone artifacts comprise the Malpais tool kit as defined by Begole. These sites lack hammerstones, groundstone tools, and ceramics. A dense accumulation of desert varnish appears to be an important defining attribute of "Malpais" artifacts. (See also observations by Julian Hayden [1976:280–281, 285–287] regarding a hypothesized "Malpais" component in Sonora, Mexico.)

The artifact types and living areas identified by Begole (1973:32–36) as "Malpais" appear to represent cultural remains affected by geological circumstances at specific locations in ABDSP. The classes of stone artifacts observed at the Malpais sites also occur at sites of all time periods. In certain cases, rocks on "Malpais" sites show pronounced weathering and desert varnish and their identification, as actual artifacts may be incorrect. The temporal significance of desert pavement surfaces and the accumulation of desert varnish on stone is an unresolved question. Little is known about the origin and formation rates for either geological phenomenon (Dorn and Oberlander 1981; Waters 1982:4–5, 6–7). One cannot precisely date artifacts on the basis of their position in desert pavement or their relative accumulation of desert varnish. Schaefer (1994:63), in his review of cultural patterns in the Colorado Desert, concludes about the issue of Pleistocene age occupation: "The entire concept of early man in the Colorado Desert…remains extremely speculative."

Most researchers recognize the San Dieguito/Paleoindian Period, dating to the early Holocene, as the earliest cultural period in the Colorado Desert (Schaefer 1994:63). San Dieguito is a cultural concept first conceived by Malcolm Rogers (1958). According to Warren and True (1961:262), site locations are as follows: "…most San Dieguito sites are found on mesas and ridges, generally lack midden and are often heavily eroded." Common San Dieguito artifacts were defined by Warren and True (1961:262) as "a wide

range of scraper types, leaf-shaped knives and dart points, with an occasional stemmed or notched specimen, chipped stone crescents (especially eccentric types), relatively few hammerstones, and crude chopping tools." No ceramic artifacts occur on these sites. Subsequent research indicates the San Dieguito Complex of the Colorado Desert is comparable to Early Holocene cultural phenomena in the Mojave Desert (Warren 1984:92). Wallace (1978:27) argued that a close relationship existed between San Dieguito and Lake Mojave artifact assemblages. In total, the two Early Holocene cultural periods "…represent regional variants of an early hunting tradition that prevailed over a wide area in southern California " (Wallace 1978:27). Warren (1984:91–103) advocates subsuming all Early Holocene cultural expressions in the western U.S. deserts, including San Dieguito, under the label "Western Pluvial Lakes Tradition."

According to Begole (1973:36,38, 1976:1–11), San Dieguito sites in ABDSP are evidenced by cleared circles situated upon desert pavement surfaces and rocky areas on the tops of mesas and terraces. The circles vary in size, may have multiple "rooms," and may be rock-outlined. The San Dieguito sites appear in geological formations dominated by porphyritic volcanic rock (termed "porphyry" by Begole). Begole (1973:39–41) also says that flaked-stone implements (including chopping and scraping tools, pick-shaped specimens, and flakes) dominate the San Dieguito assemblage in the Park. Artifacts described by Rogers (1966:156–160) as characteristic of San Dieguito, such as dome-shaped cores, bifaces, "gravers," "side scrapers," and others, also are found at ABDSP sites. The artifacts on San Dieguito sites show appreciable desert varnish. Begole (1973:36–46) subdivided San Dieguito into three phases, SD I through SD III, as suggested by Rogers. The San Dieguito or Paleoindian Period in the Colorado Desert lacks artifacts that are unequivocally diagnostic of the period and well-dated cultural contexts (Schaefer 1994:63).

Whalen (1976), in a survey conducted near the Cargo Muchacho Mountains east of the park, found San Dieguito sites situated primarily upon high terraces along washes. The flaked-stone artifacts present on these sites showed simple reduction techniques and dense desert varnish. Quartzite cores, identified as "choppers," represented a common artifact type here, but no projectile points were observed. Geoglyphs and trails are associated with the San Dieguito period sites documented by Whalen.

The next cultural period in the Colorado Desert, termed the Early Archaic, is defined by few sites and sparse remains (Schaefer 1994:64). Cleared circles on mesa tops with desert pavement are characteristic of this time period, as well as simple flake tools, no ceramics, and a lack of groundstone tools (McDonald 1992:13–14; Schaefer 1994:64). Populations were apparently low in Early Archaic times and movements within the region were frequent during the year. This period ranges in age from circa 8,000 to 4,000 years (B.P.).

People with a more diversified economic base characterized the Late Archaic Period, ranging in age from circa 4,000 to 1,500 years B.P. Late Archaic people efficiently used

seasonally available plant foods, as evidenced by the presence of groundstone tools and cache pits in sites of this period, while evidence of hunting continued. These prehistoric people were highly mobile hunters and gatherers with a low population density (Schaefer 1994:64–65). Indian Hill Rockshelter in the southern end of ABDSP yielded one of the few Late Archaic cultural components in the Colorado Desert (McDonald 1992; Schaefer 1994:65). Archaic sites have dart points such as Elko series), groundstone implements, and lack ceramics. The rock-lined cache pits found in Indian Hill Rockshelter are Late Archaic in age and likely served the same storage function as Late Prehistoric ceramic vessels. Geological forces, such as sheet wash and alluvial deposition, may affect the archaeological visibility of archaic sites in the park, or they may be hidden by the dense cultural remains of later people. Schaefer (1994:65) argues that certain sites with cleared circles found on mesa tops may date to the Archaic Period and not the earlier San Dieguito Period (also see the comments by McDonald 1992:29).

The Late Prehistoric Period or Patayan cultural pattern (equivalent to Rogers' Yuman phase) in the Colorado Desert begins around A.D. 500 and likely originated out of the Archaic Period (Schaefer 1994:65). Artifact assemblages characteristic of the Late Prehistoric include ceramics (especially, Tizon Brown-ware and Buff-wares); clay pipes; small triangular shaped, side-notched, and serrated projectile points; increased use of obsidian; groundstone tools; bedrock grinding and pounding features; soapstone implements; shell beads; cremations; rock art; and earthen art. Houses of the Late Prehistoric include rock-lined earthen structures, semi-subterranean houses, simple ramadas, and brush huts (Schaefer 1994:66). Storage of food and water became important during the seasonal round. Ceramic ollas were commonly employed as a storage vessel. Trade was common at this time as evidenced by lengthy trail systems and the widespread appearance of exotic materials, e.g., shell from the Pacific Ocean and Gulf of California, shell beads from the Santa Barbara Channel region, salt and gourd seeds from the Colorado River, and obsidian and fish from the Salton Basin (Davis 1961:20; Luomala 1978:601; Schaefer 1994:66; Zepeda 1999). Agriculture was adopted by Late Prehistoric/Patayan people who lived near the Colorado River (Schaefer 1994:66–67). Seasonal use of lakeshore resources on Lake Cahuilla was another important subsistence strategy for Late Prehistoric people of the Colorado Desert.

Many researchers hypothesize the final desiccation of Lake Cahuilla beginning in the 1500s and ending around A.D. 1700 had a profound effect upon Late Prehistoric settlement patterns in the region (e.g., Warren 1984:407). The exact role that the drying of Lake Cahuilla had in the apparent regional population growth at this time has not been definitively identified (Schaefer 1994:71–74). The economic and social systems of Late Prehistoric people, likely were highly diversified and intertribal relationships were sufficiently established to counteract the loss of lakeshore resources after the disappearance of Lake Cahuilla (cf. Luomala 1978:601–602; Shipek 1981:296–297).

ABDSP is located within the traditional territories of three Native American groups: the

Kumeyaay, the Cahuilla, and the Cupeño. The Kumeyaay had occupied significant portions of the central section of the Park, and all of the southern section of the Park. The Cahuilla used the northern section of the Park, i.e., north of Borrego Springs. Traditional Cupeño territory is peripheral to northwestern areas of the Park, such as the middle fork of Borrego Palm Canyon; portions of their territory may have overlapped Kumeyaay and Cahuilla lands in prehistory.

5.1.1.1 Kumeyaay

The Kumeyaay have been identified by a variety of names, including Diegueño, Tipai, Ipai, and Kamia. The term "Diegueño," no longer used by the Native American people or by researchers, incorporated various geographic subdivisions including Western, Eastern, Southern, Northern, Mountain, and Desert Diegueño (Drucker 1937; Kroeber 1970:709–725; Luomala 1978:592; Spier 1923). Hedges (1975:77, 80–81) argues for a more universal application of the name Kumeyaay among Native American people formerly referred to as "Diegueño." His evidence for use of the term Kumeyaay included historical data, ethnographic data, and convention employed by modern-day Native Americans. Luomala (1978) uses the terms Tipai and Ipai as an equivalent to Kumeyaay. Tipai and Ipai are names meaning, "people" (Kroeber 1970:710; Luomala 1978:592; Spier 1923:298). According to Shipek (1982:296), the terms "Ipai" and "Tipai" are now used to specify "Indian" in contrast to non-Indians. Ipai were identified living in the northern portion of Kumeyaay territory, including present-day San Pasqual, Ramona, Santa Ysabel, and Julian. The Tipai area includes the remainder of Kumeyaay territory, including San Diego, northern Baja California, Pine Valley, Cuyamaca Rancho State Park, and ABDSP (Luomala 1978:Figure 1; Spier 1923:297–298).

The Kamia, who were identified as occupying the Imperial Valley and other desert areas on the eastern periphery of ABDSP in early ethnographies (Gifford 1931), are essentially the same people as other Kumeyaay. Schaefer et al. (1987:27) concludes "Kamia" represents a reference "…to the easternmost lineages of the Kumeyaay who specialized in desert adaptation." Hedges' (1975:77–80) study of ethnographic, historical, and linguistic data for southeastern California indicate that the "Kamia" of Imperial Valley did not exist as a group separate from other Kumeyaay people. Kroeber (1970:725), researching the Diegueño (Kumeyaay) in the 1910s and 1920s, found that many aspects of Kamia and Southern Diegueño cultures showed a "fairly close affiliation" and suggested they may be the same people. Gifford (1931:2) conceded that whether the "Kamia" and the "Eastern Diegueño" were a single people or separate remained "an open question." The two groups considered themselves closely related. Native American informants interviewed by Gifford (1931:17) in the late 1920s stated the "Eastern Diegueño" (Kumeyaay) and the "Kamia" of Imperial Valley spoke the same language and represented "one tribe."

Kumeyaay traditional territory includes a significant portion of present-day San Diego County up to Aqua Hedionda and inland along San Felipe Creek (just south of Borrego Springs). The territory is bounded to the east by the Sand Hills in Imperial County and

included the southern end of the Salton Basin and all of the Chocolate Mountains. Kumeyaay territory extended southward to Todos Santos Bay, Laguna Salada, and along the New River in northern Baja California (Bean 1978:Figure 1; Hedges 1975:Figure 1; Luomala 1978:593). That places the central and southern portions of ABDSP within traditional Kumeyaay territory. The Luiseño, Cupeño, Cahuilla, Quechan, Cocopa, and Paipai bordered Kumeyaay territory.

Estimates of Kumeyaay population prior to Spanish contact are difficult to obtain. Kroeber (1970:712), in his early twentieth century research, stated that the population reached around 3,000 people. This figure is low since Kroeber apparently relied upon information gathered from baptismal records of Mission San Diego. Shipek (1981:296) estimates that 10,000 Kumeyaay were living at the time the Spanish arrived. Carrico (1986:8) identified the number of large villages known to exist at Spanish contact and then estimated the total number of individuals residing therein. Carrico calculated a figure of 17,000 Kumeyaay. Diseases introduced by the Spanish and later the Mexicans resulted in profound decreases in Kumeyaay populations (Shipek 1986:16–17).

The language of the Kumeyaay people, called Diegueño, belongs to the Yuman linguistic family. Yuman languages are a division of the Hokan Stock (Luomala 1978:592–593; Shipley 1978:Figure 1, 86–87). Shipley (1978:81) noted that the Hokan Stock represents the oldest language group in California. Indian people who bordered the Kumeyaay in northern Baja California and those living to the east in present-day Arizona spoke Yuman family languages also (Kroeber 1970:709–711; Luomala 1978:592–593). According to Luomala (1978:593), the Diegueño language has two principal dialects and many sub-dialects, although Shipley (1978:87) argued that "at least three dialects" still exist in the Diegueño language. Kroeber (1970:710) identified "two not very different dialects" and "some minor sub-dialects" within Diegueño language.

According to Shipek (1982:297), "The Kumeyaay were organized into territorial bands." The band territory consisted of a section of a major drainage and its tributaries. "Each band had a central primary village and a number of outlier homesteads located at small water sources, springs, or at the mouths of secondary creeks" (Shipek 1982:297). A sib form of kinship structure crosscut these territorial bands, in which 5 to 15 sibs (*shiimull)* might hold lineage affiliation within a band. Bands represented each sib from a variety of environmental zones. Kumeyaay social structure was "flexible" enough to allow movements between bands. The possibility among the Kumeyaay to move in with sib relatives living in distant areas provided a potential to exploit a wide range of environmental zones (Shipek 1981:297). Kumeyaay society was patrilocal and patrilineal (Cline 1984:xiv; Kroeber 1970:719–720; Luomala 1978:592, 602; Spier 1923:299). This societal principle meant, for example, that "…a young married woman went to live in husband's village and she and any children then became known by her husband's family name and/or his clan affiliation" (Cline 1984:xiv).

The bandleader was called the *Kwaaypaay*. The *Kwaaypaay* was not a *shiimull* leader, but

served primarily to mediate and judge disputes between band members. The *Kwaaypaay* organized and directed all ceremonies for individuals, for weather control, yearly cycle, harvest, and for interband relations. The *Kwaaypaay*, for example, would decide when the band moved to gather particular foods. The *Kwaaypaay* also made decisions concerning war (Shipek 1982:298).

Bands were the primary landownership unit among the Kumeyaay. The Kumeyaay also recognized certain lands as open to all use. Shipek (1982:301) provides some examples of aboriginal ownership concepts:

> Certain sections of the Laguna and Cuyamaca Mountains were tribal gathering areas for acorns and various "wild" products…Major portions of the desert and desert foothills were tribal gathering areas to which any Kumeyaay from any part of Kumeyaay territory might come for "wild" foods.

The Kumeyaay had a well-developed network of trails throughout their lands. The trails belonged to all Kumeyaay for their use (Shipek 1982:302).

Some level of "national" organization, leadership crossing over all Kumeyaay, did exist. Kumeyaay did work together for various causes, such as to resist the Spanish (Castillo 1989:384–387; Shipek 1982:300). The Kumeyaay recognized a *Kuuchult kwataay* who managed interactions with other groups, for example, the Quechan, Cahuilla, and others. The *Kuuchult kwataay* along with the *Kwaaypaay* maintained knowledge of tribal and band territories.

The Kumeyaay had ritual specialists or shaman (*kwasiyai* or *kuseyaay*) who served a critical role in the group. Bean (1985:39) summarizes the duties of a shaman thusly:

> The shaman was that extraordinary individual…who, having received a divine calling, served the people of his own village as a guardian of the sacred, interpreter of history, conductor of the soul to the other world healer or causer of illness, diviner, psychiatrist, artist, and poet…the shaman was the individual who maintained direct connection with the supernatural…

Spier's (1923:311) informant observed that the "Southern Diegueño" had curing and rattlesnake shamans. Techniques of curing used by Kumeyaay shamans included "…sucking blood or the diseased object, either with the mouth or through a pipe; kneading and pressing; and by blowing tobacco smoke" (Kroeber 1970:718). The shaman was responsible for the production of most rock art. Rock art was sacred, played a role in rituals, and in many cases represented a visualization of mythical or other higher beings observed in dreams (Hedges and Hamann 1995:15–16; Knaak 1988:98–99).

Religious rituals played a significant role in the everyday lives of southern California Indians. Some of the more important rituals performed by the Kumeyaay and other

Californian groups were the annual mourning ceremony, eagle ceremony, rites of passage (e.g., male and female initiation), rituals designed to control the environment, and ceremonies to honor the deceased (Bean 1985:40). According to Bean (1985:40), rituals for the dead "…articulated economic, political, and social affairs, and served to ritually and dramatically demonstrate the primary religious-philosophical tenets of the societies." Among the Kumeyaay, the *keruk* or image ceremony, which lasted from four to eight days, represented the principal ritual for commemorating those who died and served to guide the deceased onto the afterworld (Cline 1984:80–84; Luomala 1978:603). A special structure was erected and a large pit dug for the *keruk* ceremony (Cline 1984:82; Gifford 1931:58–59). In the following statement, Shipek describes Kumeyaay spirituality (1985:67):

> "The Kumeyaay do have abstract spiritual concepts of religion and of a higher creator-god. Their highly complex moralistic, philosophical, and mystical concepts describe the ideal for the relationship of humans to God, humans to humans, and humans to nature."

According to Shipek (1981:2970298), the Kumeyaay, as well as the Luiseño and Cahuilla, had religious plant food specialists who controlled knowledge concerning the location and development of plant-food resources. These specialists "…directed the people to perform the appropriate actions at the proper time through ritual and ceremony" (Shipek 1981:297). Shipek (1981:298) further hypothesized that numerous plants important in aboriginal subsistence, such as grasses, berry crops, cacti, Agave, etc., were manipulated by the Kumeyaay to a point of semi-domestication. Various techniques were employed including selective planting of seeds and burning (cf. Bean and Lawton 1973).

Kumeyaay houses (*awa*) varied in construction depending upon season, function, availability of raw materials, or other factors. Mountain houses of the Kwaaymii, a Kumeyaay band who resided in the Laguna Mountains and adjoining desert areas, were built circular in form. The support poles would be made from pine or juniper. The height averaged 1.5 meters, and they were built large enough for a family to sleep inside (Cline 1984:9). Winter houses, used in the desert, were similar in design. Tom Lucas related that desert willow was used in the framing of desert houses, while thatching material included arrowweed, pine boughs, or marsh grasses (Lucas 1995:57). Mesquite and occasionally pine would also be used for support poles in desert houses (Cline 1984:9). In the Imperial Valley, Kumeyaay ("Kamia") houses were rectangular with thatching and then covered by sand. A woven willow branch mat served as a door (Gifford 1931:18–19). Kumeyaay families would build their houses near each other. A house that was no longer useable would be burned down and replaced at the same spot (Cline 1984:12). One family could use multiple structures at a camp, each serving different purposes, e.g., sleeping, cooking, sweating, or a place for older folks (Lucas 1995:57). Simple lean-to shelters were also used in desert camps, usually by a person living alone or for special purposes (Cline 1984:12; Luomala 1978: Figure 3). Kumeyaay also constructed specialized structures such as brush dance circles used in various

ceremonies; these would be owned communally (Luomala 1978:597). Kumeyaay dug wells (*setlmehwatl*) where permanent surface water did not exist (Kroeber 1970:722).

The Kumeyaay in prehistoric times were semi-sedentary residents of certain favored locations or base camps. Kumeyaay could then travel to outlying areas seasonally to harvest food resources and to avoid inclement weather, such as winter snows. Camps were selected for their favorable environmental circumstances, including access to water, access to plant foods and hunting areas, access to outcrops suitable for food-processing activities, a natural microclimate or protection from strong winds, and other factors (Lucas 1995:6–7; Luomala 1978:597; McDonald 1992:53–54; Shipek 1970). Kumeyaay bands living in the Laguna Mountains migrated to the desert areas in and next to ABDSP during the winter and stayed until early spring. Trails used by prehistoric people followed canyons (such as, Cottonwood and Storm Canyons) down the mountainside, to reach the desert foothills and floor (Cline 1979:10–12, 1984:15; Lucas 1995:6–7, 11, 14). For example, Carmen Lucas' (1995) compilation of Kwaaymii band ethnohistory, indicates aboriginal people wintered in Mason Valley, Hapaha Flat, Harper Flat, Pinyon Mountain Valley, Canebrake Canyon, and other areas within and adjoining the park. Kumeyaay who occupied the Imperial Valley and Salton Basin did not move camps an appreciable distance during a year, as their practice of agriculture sufficiently complemented locally available wild food resources (Gifford 1931:21–24; Hicks 1963:323, 326–327).

Plant foods represented the most important basis of subsistence for hunter-gatherer people such as the Kumeyaay, and availability of important plant foods greatly influenced movements of groups (cf. Aschmann 1959:93; Bean and Saubel 1972:15–23; Hicks 1963:322–327; Lee 1968:33, 40–43; Luomala 1978:599–600; Wallace 1962a:12, 1962b:11–12, 1962:21). Various plants with potential food uses ripened earliest within Kumeyaay territory on the lower elevations of the desert floor, e.g., cacti, chia, grasses, ocotillo, and yucca. The harvest of agave (*Agave deserti*) occurred primarily in April or May, but could begin as early as February (cf. Bean and Saubel 1972:31–36; Hedges and Beresford 1986:13; Hicks 1963:110; Shipek 1970:32, 1991:32). Significantly, agave plants (*'emally*) are abundant in the desert foothills and desert floor, and as food, products are reliable, nutritious, and can be stored for long periods. Agave also provided other useful products, such as fiber (Bean and Saubel 1972:31–36; Hicks 1963:106–113).

Aboriginal people returned to the desert in mid-summer to harvest mesquite (*tam yea*), another important food (cf. Bean and Saubel 1972:107–119; Hicks 1963:97). Mesquite plants are abundant and each plant produces a large number of pods. Mesquite pods are procured easily and can be stored for long periods of time (Hicks 1963:93–101). Among Kumeyaay living in the Imperial Valley ("Kamia"), mesquite and screwbean were the most important wild plants used for food (Gifford 1931:23). Hedges and Beresford (1986), Hicks (1963), and Tom Lucas (Lucas 1995:51) identified a variety of desert plants used by Kumeyaay people for food or other uses. Numerous trails existed throughout the Colorado Desert and showed the wide-ranging nature of prehistoric

food-gathering forays (Schaefer 1994:66).

Kumeyaay people who resided in the Imperial Valley and Salton Basin practiced agriculture in the late spring when the Colorado River overflowed its banks (Gifford 1931:4–5, 21). Gifford listed cowpeas, gourds, maize, pumpkins, teparies, and watermelons as crops that they grew. Gathering of wild plant foods remained an important basis for sustenance (Gifford 1978:23–24; Luomala 1978:600). Hedges (1975:79–80), based upon a reexamination of ethnographic and historical information for this area, argues that agriculture served as a supplementary form of subsistence for the Kumeyaay, but never gained precedence. Agriculture would have been used only when conditions along the rivers were appropriate. These eastern Kumeyaay obtained acorns from Kumeyaay bands living to the west through trade for their agricultural products (Gifford 1931:23).

The Kumeyaay of the desert hunted rodents, chuckwalla, jackrabbits, cottontail, deer, bighorn sheep, and other animals (Luomala 1978:601; McDonald 1992:309–310). Kumeyaay bands living to the west of ABDSP also hunted waterfowl and fished in the Colorado River and its sloughs (Gifford 1931:25). Prehistoric people who resided in the park had access to lacustrine and riverine products from the Salton Basin, as indicated by the presence of freshwater mussels and fish from both Lake Cahuilla and the Colorado River in the midden deposits of Indian Hill Rockshelter (McDonald 1992:310). According to Tom Lucas, Kumeyaay bands living in the mountains west of the park would travel to Lake Cahuilla to fish (Cline 1984:24). Hunting equipment included bows made from huckleberry, mesquite, or willow; arrows made from arrowweed; curved throwing sticks, and traps and snares (Cline 1984:21–24; Gifford 1931:28; Luomala 1978:601). Fishing equipment included the hand, hooks, a basketry scoop, nets, and stone fishtraps (Cline 1984:24; Gifford 1931:25).

Ceramic implements played a key role in the everyday life of aboriginal Kumeyaay people. A variety of vessel forms known to have been made by the Kumeyaay include large storage ollas (*pahatc*), water ollas, cooking pots and bowls, pipes (*mokwin*), and rattles (Rogers 1936:18–19). Among the Kumeyaay clay sources were open for all to use for pottery making, though individual potters obtained raw material from specific spots within the source (Hedges and Beresford 1986:46–47; Rogers 1936:4). Hedges and Beresford (1986:47) identify the Kumeyaay word for pottery clay as *mathwatt*, meaning "red dirt." Rogers (1936:4) reported "jagged rocks and sharpened sticks" as aboriginal clay-quarrying tools. Rogers' 1936 document contains a good description of the traditional pottery-making process as performed by an early twentieth century Kumeyaay potter.

The Kumeyaay manufactured both coiled and twined baskets for a variety of uses. Basket types included seed beaters, hoppers for mortar holes, winnowing baskets, leaching baskets, granaries, basketry caps, and nets (Elsasser 1978:631; Hedges and Beresford 1986:12; Luomala 1978:600, 602). Principal raw materials used in Kumeyaay

basket making are *Muhlenbergia rigens*, *Rhus trilobata*, *Juncus textilis*, and the needles of *Pinus jeffreyi* or *Pinus ponderosa* (Hedges and Beresford 1986:9). An awl for sewing and a small knife for cutting tasks represent the only tools used in the basket-making process as practiced by twentieth century Kumeyaay artisans (Hedges and Beresford 1986:11).

5.1.1.2 Cahuilla

The origin of the name "Cahuilla" is problematic, but may have meant "masters" (Kroeber 1970:693). That meaning for the name remains unconfirmed. Bright (1977) discusses the various hypotheses for the origin of the name "Cahuilla" and argues that it does not mean "masters." Rather, Bright found information in the notes of J. P. Harrington that the name came from a Baja California Indian language, Cochimi, and had been adopted by the Spanish to refer to "a non-missionized Indian." The term "Cahuilla" subsequently was applied to southern California Indians now called the Cahuilla (Bright 1977:117–118). Lowell Bean (1978:586), a well respected authority on the Cahuilla, stated: "The Cahuilla refer to themselves as *givitem* or *giviluwenetem*…." In Herbert Bolton's (1930) publishing of Spanish diaries, the Cahuilla are called "Jecuiches." The Luiseño called the Cahuilla *Yuhikt-om* or *Kwimkuch-um*; the Cupeño called them *Tamikoch-em* (Kroeber 1970:693). William Duncan Strong (1929:36–37) argued that the term *iviatim* is an appropriate term by which to refer to all the Cahuilla. The word means "the Cahuilla-speaking people." Kroeber (1970:693–694) identifies three divisions of Cahuilla: the Western or Pass Cahuilla, the Desert Cahuilla, and the Mountain Cahuilla. Strong (1929) used the same three divisions for the Cahuilla.

The traditional aboriginal territory of the Cahuilla, as defined by Bean (1978:Figure 1), encompassed a geographically diverse area of mountains, valleys, and low desert zones. The southernmost extent approximately followed a line from just below Borrego Springs to the north end of the Salton Basin and the Chocolate Mountains. The eastern boundary ran along the summit of the San Bernardino Mountains. The northern Cahuilla boundary stood within the San Jacinto Plain near Riverside, while the base of Palomar Mountain formed the western boundary. The northern end of ABDSP lay within traditional Cahuilla territory as defined by Bean (1978:Figure 1) and Strong (1929), including Borrego Palm Canyon, Coyote Canyon, Clark Valley, the Santa Rosa Mountains, Jackass Flat, Rockhouse Canyon, Horse Canyon, and other places. Other northerly areas of the park, such as the San Felipe Creek drainage, Culp Valley, Pinyon Ridge, the Borrego Badlands, and Borrego Valley may have formed a so-called "transitional zone" between the Cahuilla and the Kumeyaay (Ipai). The two groups would have used the latter areas jointly or, as convenient, for subsistence or ceremonial needs (cf. Strong 1929:146). Lands of ABDSP fall within Mountain Cahuilla territory as defined in Strong's ethnography (1929:Map 5, 146–147).

Bean (1972:76–77) recommends doubling the population estimate for the aboriginal Cahuilla originally proposed by Kroeber for the time of Spanish contact. The updated population estimate stands at approximately 6,000 people (Bean 1972:75–77,

1978:Table 2), based upon many lines of evidence. Introduced diseases, use of lands for livestock grazing, and conflicts with the Spanish almost immediately affected the contact-period population of California Indians including the Cahuilla (Bean 1972:75–76; Cook 1978:91–92; Walker et al. 1989:351–352, 355–359).

The Cahuilla language, called *givigat* or *givilugat*, is part of the Takic family of the Uto-Aztecan stock (Bean 1978:575, 586). There are three dialects of the Cahuilla language, Desert, Mountain, and Pass (Shipley 1978:88). Strong (1929:144–145) stated the dialect spoken by the Mountain Cahuilla people "…differs to a slight extent from that of the Desert and Pass Cahuilla..."

The Cahuilla, as a whole, speak the same language and recognize a shared cultural heritage. However, the Cahuilla may never have united as a unit prior to European contact (Bean 1972:85). The Cahuilla were divided into two moieties referred to as *Tuktem* (Wildcats) and *gistam* (Coyotes). Cahuilla people belong to the moiety of their father. No territory boundaries were attached to membership in a moiety (Bean 1972:85; Kroeber 1970:705). Bean (1972:85) summarized the place of moieties in Cahuilla society thusly: "The primary functions of the moieties were to regulate marriage and ritual reciprocity." Cahuilla married outside their moiety. The Cahuilla further recognized that members of each moiety must cooperate during ceremonies. These societal rules served to create institutionalized social interaction among the Cahuilla (Bean 1972:85–86).

Strong (1929:334) made these observations about Mountain Cahuilla clans: "…the autonomous, localized paternal clan was the Mountain Cahuilla social and political unit." The clans then subdivided into lineages. Bean (1978:580) indicates that clans would have been comprised of three to ten lineages, each claiming a common genitor, and one lineage was recognized as the founding line. Bean (1978:580) further stated:

> Each lineage within the clan cooperated in defense, in large communal subsistence activities, and in performing rituals. Founding lineages often owned the office of ceremonial leader, the ceremonial house, and a ceremonial bundle (*mayswut*)…

Lineages would own a village site and certain resource areas, though most of the land recognized as clan territory was open to all Cahuillas (Bean 1978:580). Lineages of different moieties situated their villages near each other, thus facilitating an exchange of potential marriage partners, ritual materials, and subsistence goods (Bean 1972:85–86).

The leader of the lineage was the *net*, a position normally inherited from father to eldest son. The *net* had numerous responsibilities and societal functions including the following correct maintenance of rituals; care of the ceremonial bundle; maintenance of the ceremonial house; determination of where and when to conduct hunting or food-gathering activities; administration of first-fruit rituals; storage of communal goods for use in ceremonies and subsistence, maintained information on ownership rights, meet

with other *net* to discuss land use, marriages, trade, etc., and other duties Bean (1972:104–105, 1978:580). The *paxaag* assisted the *net* in his duties. Together, the two positions were "…essential for the maintenance of the economic, social, and religious structure of the Cahuilla" (Bean 1972:105).

The ritual singer or ceremonialist, termed the *hawaynik*, performed the songs used in various ceremonies, in particular, rites of passage. The ritual singer was highly revered in Cahuilla society (Bean 1972:106–107, 1978:581). The *hawaynik* was also a teacher and provided instructions on proper behavior to young people.

Shamans (*puvalam* or *puul* in singular form), who were always male, played an important role in Cahuilla society. Strong (1929:64) identified the Cahuilla term for shamans as *pualem*. Bean (1978:581) summarized their functions as follows:

> …through the manipulation of supernaturally acquired power cured illness…, divined, controlled natural phenomena such as rain, created food, witched, acted as guardians during ceremonies (keeping away ghosts, malevolent spirits, evil beings or evil power), and in conjunction with the *net* and *paxa* exercised political authority over the community at large.

An individual must possess supernatural power to become a shaman. A shaman was obligated to regularly demonstrate his powers to maintain status among the group (Bean 1972:110, 1978:581). *Puvalam* were "highly valued and respected" in Cahuilla society, given their importance in all aspects of everyday life (Bean 1972:114).

The *puvalam* cured illnesses by sucking the object from the patient. Songs and herbal treatments complemented the sucking cure (Bean 1972:111). Specialized knowledge of the medicinal uses of plants was held by the *puvalam* and *tingvish* (doctors) among the Cahuilla. Some treatments were public knowledge, though much of it was maintained in secret by the *puvalam* and the *tingvish* (Bean and Saubel 1972:19). Shamans and doctors used special equipment in their curing, including, mortars, cutting tools, and cooking pots. The mortars and pots used by the *puvalam,* possessed powers originating from spiritual guardian beings (*nukatem*). Songs and rituals were a component of cures performed by shamans (Bean and Saubel 1972:19).

Among the southern Mountain Cahuilla lineages ("Los Coyotes people"), another member of the group with important duties during rituals was called *kutvavanavac*. He would order people to prepare food when preparations for a ceremony began. The *kutvavanavac* maintained order during a ritual and also played a role as a joker. He had other responsibilities, depending upon the specific ceremony being performed (Strong 1929:166).

Oral literature and songs in particular, served as the repository of Cahuilla laws and principles of appropriate behavior (Bean 1972:120–122). Values important in Cahuilla

society include reciprocity, fairness, dependability, integrity, acting in a deliberate manner, and others. Elders played a critical role as the ones who taught the established societal values and skills important in everyday life to the young (Bean 1978:583).

Rituals played an important role in the everyday life of the Cahuilla. They were pervasive in all societal institutions. "Ritual served as a basic articulating mechanism for all institutions in Cahuilla society" (Bean 1972:135). Some of the important rituals included the *nukil*, an annual week-long ceremony honoring deceased lineage members, the eagle ritual, celebrating the longevity of the lineage; initiation rituals for both boys (*manet)* and girls (*emeuluniwe*); first-fruit ritual, a three-day ceremony to celebrate the beginning of food-gathering season, curing rituals, rituals to ensure hunting success, and other ceremonies (Bean 1972:135–159, 1978:583; Strong 1929:172–181, 334). Bean (1978:583) summarized key functions of rituals:

The central focus of most of these rituals was the performance of cosmologically oriented song cycles that placed the universe in perspective and reaffirmed the relationship of the Cahuilla (both the individual and the collective) to the sacred past, to the present, to one another, and to all things.

The *nukil* ceremony honored members of a lineage who had died since the last *nukil* ceremony occurred, and involved a week of continuous song and various other ritual and social observances (Bern 1972:135–138; Strong 1929:84–85). Significantly, this ceremony served important social and economic functions within Cahuilla society, since goods would be exchanged, marriages could be arranged, and other matters could be taken care of. During the *nukil*, food might be exchanged to lineages suffering shortages, or surpluses of particular critical items from one area could be exchanged for surplus items of another area. Important foods were thus redistributed (Bean 1972:137–138, 156, 158).

First-fruit ceremonies were held at the beginning of the gathering season for major plant foods, such as agave, mesquite, oaks (acorn), pinyon pine, and others (Bean and Saubel 1972:16). According to Bean (1972:143), plant fertility and control of their production and distribution of plant foods were major goals of Cahuilla ritual. A first-fruit ceremony was administered by the *net* and lasted three days and three nights. This ceremony served "…to express appreciation to the supernatural powers for providing the food," and assured that plant fertility would continue in the future (Bean 1972:143).

Music and songs were a critical part of ceremonies and other aspects of everyday life. The Cahuilla used a number of musical instruments including flutes, whistles, pan-pipes, and rattles (made from a variety of raw materials). Vocal expression was most commonly employed in Cahuilla songs (Bean 1978:580).

The ceremonial bundle of the *net* of the *Wiwaiistam* clans (the Mountain Cahuilla group that lived in Coyote Canyon) was called *maiswut* (Strong 1929:165). The bundle was

wrapped in a woven reed mat made of reeds from the coast. Strong (1929:165) reported the following items were contained in this sacred bundle: long strings of flicker, eagle, horned owl, barn owl, and burrowing owl feathers (*piwic*); the eagle-feather skirt (*elatem*); short pointed sticks with flicker and horned owl feathers on the ends (*tciatem*); shell money of the clan (*muketem*); and the ceremonial bull-roarer (*meulakpic*). Strong (1929:165) stated that: "These bundles were the symbolic centers of the original clans… object[s] with extraordinary sacredness, [which] symbolized Cahuilla life and the creation of Cahuilla people. It also embodied the values important in Cahuilla society." The ceremonial bundle was integral to all ceremonies performed by the Cahuilla (Bean 1972:88–89).

According to Lowell Bean (1972:72), most desert region houses were dome-shaped but varied in size. Some houses measured up to 15 to 20 feet in length and width, while others were mere brush shelters. The roofs were thatched with available material such as palm fronds, arrowweed, willow, tules, or other plant materials. Houses would be built adjacent and connected by thatched arbors or ramadas that served as shade and windbreaks. The house would have a hole in the roof to allow smoke to escape from the hearth (Bean 1972:72). Francisco Patencio, a noted Cahuilla elder, remembered that aboriginal Cahuilla people lived outdoors during most of the time in summer. Shelter during those times consisted of simple ramadas constructed with poles and covered in palm fronds or brush. Similar ramadas would be used for short-term camping on food-gathering trips (Patencio 1943:119).

Kroeber (1970:703), working in the early 1900s, observed rectangular shaped houses that had been laid upon forked posts. Kroeber did not suggest this house style had been used in prehistory. A mud or adobe plaster was sometimes applied to the walls. Houses in the desert were larger and square-shaped, with a flat roof. Kroeber felt the mud coating on the house walls represented a later innovation and had not been used prehistorically. Another house type used by the Cahuilla in the mountains, lacked walls and was set up with two, four, or six posts (Kroeber 1970:703).

The largest building in a village would be the ceremonial house. The ceremonial house, a dome-shaped building, was similar in construction to that of a normal residence, but could be up to 50 feet in diameter. It was used for meetings, rituals, dancing, as a sanctuary for the ceremonial bundle (*maiswat*), and as a residence for the *net* (Bean 1972:72–73). The Mountain Cahuilla called their ceremonial dance house *kicamnawut* or *wamkic*. According to Strong (1929:182), the last ceremonial dance house of the Mountain Cahuilla burned "many years ago." A dance house existed at *Wiliya*, a village formerly located within the Middle Willows area of ABDSP, and was used for rituals (cf. Strong 1929:171).

Cahuilla villages also had a sweathouse (used by men), granaries (used for storage of important foods), and water wells (structures of varying dimensions for obtaining water) (Bean 1972:73). The Mountain Cahuilla called their sweathouses, *hasluc*. It

would measure 10 to 15 feet in diameter was 4 or 5 feet high, and was covered with brush and dirt (Strong 1929:182).

All members of a clan jointly owned the clan territory. Specific areas were owned by lineages, including village sites, food-gathering and hunting areas, and sources of raw material (e.g., toolstone quarries, basketry plant areas, etc.). Lineages also owned traditional stories, songs, and anecdotes. Individuals owned subsistence and ritual implements and could loan or sell them. Territorial boundaries would be marked by petroglyphs, stones, geographic features, and by oral traditions (Bean 1972:125–129, 1978:582; Bean and Saubel 1972:124, 127).

Families owned specific mesquite groves, oak trees, canyons with abundant cacti or yucca, and other plant resource locations. In particular, oaks and mesquite that produced reliable yields of fruits would be individually owned (Bean and Saubel 1972:21–22, 124; Lando and Modesto 1977:105–106). Pinyon pine trees tended to be open to any Cahuilla, since their produce is much less predictable. A shaman sometimes owned a particular area in which useful medicinal plants grew. Basket makers tended to own areas where basketry material could be gathered. Cahuilla used the term *kiiwut* to refer to privately-owned gathering areas (Bean 1972:126–127; Bean and Saubel 1972:22).

Personal items, such as metates, manos, baskets, pots, etc., would be destroyed upon the owner's death, unless that person had given their tools to another. Pottery would be smashed and the bottoms of metates would be broken (Bean 1972:128).

Each Cahuilla lineage located their permanent village close to a wide range of natural resources, usually "within the center of the richest food-gathering area" (Bean and Saubel 1972:19–20). Bean and Saubel (1972:20) estimated all food resources necessary for sustenance lay within 16 miles or less, and 80% of these resources could be obtained within 5 miles of that village. At no time during the year did the entire population of a village move to another location, though a large number of people might move to perform seasonal gathering activities (Bean 1972:73–74; Bean and Saubel 1972:20).

In spring, agave, cacti, catsclaw, grasses, ocotillo, various greens, yucca, and other plant resources became available for gathering (Bean and Saubel 1972:20, 29, 32, 151; Hicks 1963:passim; Lando and Modesto 1977:109). Groups of adult men and young boys would leave the villages for several days in spring to harvest and prepare agave (Bean 1972:41–42; Bean and Saubel 1972:32). The basal rosette ("mescal head") would be extracted and roasted within a pit oven; the stalk, leaves, and flowers represented other parts of the agave plant used for food or other products (Bean 1972:41–42; Bean and Saubel 1972:33–34). A concentrated area of *Agave deserti* within Lower Willows (Coyote Canyon) was the favored gathering location for Cahuilla lineages that resided in ABDSP (Saubel nd.). Few tools, other than a wood digging stick, bedrock pounding

surface, and a cobble-pounding tool, would be needed to harvest and prepare Agave. Gathering of various plants continued into the early summer.

Mesquite (*Prosopis glandulosa)* and Screw-Bean (*Prosopis pubescens*) pods became available by July. The gathering of mesquite and Screw-Bean pods, attended by a large portion of the village, continued for several weeks (Barrows 1971:306–307; Bean 1972:38–39; Bean and Saubel 1972:109; Lando and Modesto 1977:105–106). Within Cahuilla territory of ABDSP, Bean and Saubel (1972:107–108) stated mesquite was most abundant around Borrego Springs and at the mouths of Coyote and Rockhouse Canyons. Another favored mesquite gathering location was Little Clark Lake (Bean et al. 1991:60). The dependable nature and abundance of mesquite pods and their capacity to be stored long-term gave considerable stability to aboriginal life in the desert (Bean and Saubel 1972:108–109). Mesquite pods also represented a highly nutritious food (Bean 1972:39). Francisco Patencio (1943:59) described mesquite as "very good food." The hunting by men of rabbits and other game was another important economic activity that took place during the mesquite harvest (Bean 1972:39, 59).

Additional plant foods available in summer included Cacti, Chokecherry, Desert Apricot, Holly-leaved Cherry, Manzanita, Palo Verde seeds, etc. (Barrows 1971; Bean and Saubel 1972:20, 95–97, 119–120; Hicks 1963:passim; Lando and Modesto 1977:106–107). According to Bean and Saubel (1972:20), summer was the busiest time for food gathering among the aboriginal Cahuilla. Such tasks would have been primarily performed by small groups of women.

Many important plant foods were available in late summer and early fall, including various berries, chia, grass seeds, juniper berries, palm fruit, pinyon pine seeds, and saltbush seeds. The juniper plants and pinyon pine trees often lay miles from Cahuilla villages. Family groups visited the groves for the harvest and then returned to their villages after about a week or more. The men could hunt while the pine seed harvest occurred (Bean 1972:39–40; Bean and Saubel 1972:21, 81–82, 102–105).

Acorns were the last important food resource gathered in a year, usually October and November. According to Bean and Saubel (1972:21, 125–129), most people of a village moved to the oak groves for the harvest. Trails typically existed to connect the village to the oak groves. An acorn harvest could last from three to four weeks; Cahuilla camped within the groves, and lineages would use certain camp locations each year (Bean 1972:74–75; Bean and Saubel 1972:126). According to Katherine Saubel (nd.), San Ysidro Mountain was one location used by the Cahuilla of the Coyote Canyon to gather acorns. Cahuilla women used the following tools at the acorn-harvesting camps: carrying baskets (*saqwaval*), the mortar (*qawvaxal*), the pestle (*paul*), leaching baskets (*pachika'va'al*), sifting baskets (*chipatmal*), a spoon (*kumal*), and a small hand broom (*alukat*). Each woman possessed her own portable or bedrock mortars (Bean and Saubel 1972:127). Pestles would be left in place within the mortars. Portable mortars, if used, were left at the processing camps (Bean 1972:37; Bean and Saubel 1972:127). Some

acorns would be ground and cooked at the gathering camp, but many acorns were carried back to the home village and stored within a granary. Acorns could be stored in a granary for a year or more (Bean and Saubel 1972:128–129). Acorn meal could be stored for short period of time in an olla. Acorns represented a highly nutritious food (Baumhoff 1963:162; Bean 1972:38). Men engaged in the hunting of small and large game animals while families camped among the oak groves (Bean 1972:37).

The end of the yearly seasonal food-gathering period came in November. Hunting and the use of stored foods provided the main sustenance in the winter among the aboriginal Cahuilla (Bean 1972:154–157). Winter became a time of ceremonies. These ceremonies served a variety of functions, in particular"…the regeneration of the universe for the year ahead" (Bean and Saubel 1972:21). Significantly, food was also redistributed between Cahuilla lineages as part of the ritual activity. Reciprocity was a pervasive societal value (Bean 1972:154–158, 174–175).

The movement from one village to another and to food gathering areas was facilitated for the Cahuilla by a complex system of trails. For example, Bean et al. (1991:95–96) identify eight aboriginal trails within the northern portion of ABDSP. Lester Reed (1963:111–120, 126) described the locations of several Indian trails within the northern Section of ABDSP. Reed's accounts indicate aboriginal trails were numerous and wide-ranging. Trails would be carefully maintained and used for differing functions (Bean 1972:75). Specific trails would be used exclusively for trade, for visiting, or for hunting, and some trails belonged to particular lineages. The people might identify trails by markers. Cahuilla people could recognize the uses of trails and lands that belonged to other groups (Bean 1972:75). Francisco Patencio (1943:70) discussed the Cahuilla view of trails as follows:

> The trails of the Indians were everywhere. They led up all the canyons. There were hunting trails for the men, and used by the women to gather the seed, nuts, plums, and acorns, so many things. They led from the land of one tribe to another. All the Indians did their part to keep the trails clear. The trails were sacred to the Indians.

Mountain Cahuilla clans belonging to the Coyote Moiety used most traditional Cahuilla lands within present-day ABDSP. There were five lineages, collectively called the *Wiwaiistam*, who lived in Coyote Canyon. The central village, known as *Wiliya*, was situated within Middle Willows (Bean et al. 1991:28, 102; Strong 1929:Map 5, Table 7, 146). Strong (1929:146) discussed the Mountain Cahuilla villages in Coyote Canyon:

> To the north in the Coyote canyon [sic] were located several Cahuilla villages, the central one being called *wiliya*, and the outlying villages, *sauivil*, *sauic*, and *tepana*, respectively; the last three were occupied by branch clans of the central group at *wiliya*. Slightly to the west of *wiliya* was an old village called *tcia*, all of whose inhabitants died long ago.

Strong (1929:146) noted that the Cahuilla in these villages had considerable contact with neighboring Cupeño, Luiseño, and Kumeyaay groups. Strong (1929:Table 7, 158)

identified five lineages among the *Wiwaiistam* clan: *Nauhanavitcem*, *Temewhanvitcem*, *Tepaiyauitcem*, *Sauicpakiktum*, *Sauivilem*. The *Nauhanavitcem* lineage village home was possibly located at Mangalar Spring, situated at the south end of Fig Tree Valley (Bean et al. 1991:66). The *Temewhanvitcem* lineage occupied a home village, reportedly northeast of *Wiliya* at the west end of Middle Willows (Bean et al. 1991:90). The *Tepaiyauitcem* lineage home village was *Tepana* located in Alder Canyon adjacent to Upper Willows (Bean et al. 1991:91; see also Strong 1929:Map 5). The *Sauicpakiktum* lineage lived in Salvador Canyon (Bean et al. 1991:28; Strong 1929:Map 5). The *Sauivilem* lineage home village, named *Sauivil*, does not appear in Strong's map of Mountain Cahuilla Territory. Barter (1991:5), a DPR Archaeologist, suggested that *Sauivil* might have been located within Lower Willows or Sheep Canyon.

Strong (1929:148–152) observed that locations of Mountain Cahuilla clans prior to European contact had been subject to changes created by a variety of causes. Influences from the Spanish and the Mexicans in the 18th and 19th centuries were profound. A smallpox epidemic around 1875 killed numerous Mountain Cahuilla of the *Wiwaiistam* clan in Coyote Canyon. This epidemic caused the people to burn "all the houses in several villages" and move to another village away from Coyote Canyon (*Patcawal* at San Ignacio).

Katherine Siva Saubel (nd.) identified four family groups or lineages that lived and used Coyote Canyon. They are as follows: *Tepayawichem*, *Nawxwa'atem*, *Sawvel pa'Kiktem*, and *Temamxwanvichem*. Their villages were situated in Salvador, Sheep, Cougar, and Indian Canyons, as well as Lower and Middle Willows. Katherine Saubel's grandfather, Juan Siva, lived in a village at Lower Willows) before he and his family moved to *Patcawal*. Mrs. Saubel points out that rich food-gathering areas occurred throughout Coyote Canyon.

Bean et al. (1991:passim) discusses the locations of aboriginal Mountain Cahuilla villages, trails, and sacred areas in lands now within ABDSP. These locations include Rockhouse Canyon, the Santa Rosa Mountains, Nicolas Canyon, Clark Valley, Horse Canyon, and others. Bean et al. (1991:28) state, for example: "Rockhouse Canyon has a central place in Cahuilla oral history." The Cahuilla village of *Ataki* was located at Hidden Spring (in Jackass Flat) and is reported to be the original home of two clans of the Wildcat Moiety (Bean et al. 1991:41, 52).

Baskets played a key role in the aboriginal economic tasks and the rituals of the Cahuilla (Bean and Saubel 1972:23–24). The Cahuilla made a variety of twined and coiled basketry products of renowned quality including carrying nets, seed beaters, flat plates, bowls, carrying and storage baskets, caps, and hoppers for use with the mortar and pestle (Bean and Saubel 1972: 23; Elsasser 1978:631; Kroeber 1970:698–702). Various species of *Juncus*, as well as sumac, deer grass, Mohave yucca, and Agave were employed in producing basketry and fiber (Bean 1978:578–579; Bean and Saubel 1972:passim; Elsasser 1978:631).

The Cahuilla employed the paddle-and-anvil technique and red-burning residual clays to manufacture ceramic items (Rogers 1936:22). The Cahuilla made storage ollas, water ollas, small-mouthed jars, cooking pots, open bowls, dishes, and pipes (Bean 1972:54, 1978:579; Rogers 1936:22–23).

The Cahuilla used bows and arrows, throwing sticks, nets, and traps in hunting game (Bean 1972:64–66; Kroeber 1970:704). The bow was typically manufactured from willow or mesquite wood. The throwing stick was reportedly effective in killing rabbits and hares. Eighteenth century accounts by Spanish observers provide testimony to the skills of Native Americans in using the throwing stick to hunt small game (Bolton 1930). The Cahuilla used all parts of game animals, either as food, for tools, or for clothing. Hunting and animal butchering were male tasks (Bean 1972:66).

5.1.2 ARCHAEOLOGICAL SITES

A total of 4,322 historical resources, either archaeological sites, isolates, or other historical properties, have been documented within ABDSP. That figure includes 3,669 historical resources with actual site trinomials; all but a few of the remaining resources have been recorded at the appropriate Information Centers with Primary numbers. A small number (92) of the known resources are locations documented in the records of the San Diego Museum of Man; however, many of these represent non-specific site areas. The historical resources break down by era as follows: 3,991 prehistoric, 209 historic, 83 mixed (historic and prehistoric), 37 unknown, and 2 protohistoric. The recorded historical resources occur in the following counties: 3,912 within San Diego County, 297 within Riverside County, and 17 within Imperial County. It has been estimated that approximately eight percent of the park has been surveyed for historical resources. Detailed descriptions and locational information for the recorded sites and isolates are found in California State Park files and at the appropriate Historical Resources Information Centers.

5.1.3 PREHISTORIC ARCHAEOLOGY

Native American sites within ABDSP show extraordinary diversity of content and can be found throughout the park. An estimated 693 of the total prehistoric sites within the park show evidence of occupation, either as long-term dwelling locations with appreciable midden deposits and numerous cultural remains or short-term camp locations showing low-density artifact distributions. Sites showing only roasting pit or earth oven features are a common element of the cultural environment, with an estimated 1,005 present. Roasting pit features are found in a total of 1,572 sites throughout the park. Sites showing only bedrock milling, grinding, or pounding features number 940, and occur in all areas of the park. Aboriginal rock art, a culturally significant and highly sensitive site type, occurs at 108 sites. Archaeological sites identified as lying within traditional Kumeyaay territory show approximately twice as many rock art elements as those located in traditional Cahuilla territory. Cleared circle

features, hypothesized to represent house remains, are a curious cultural component of Colorado Desert Archaeology and can be found at 235 sites within the park. Evidence of aboriginal human remains, in particular, cremations, has been documented at 52 archaeological sites within the park. Other prehistoric site types found within ABDSP Park include, toolstone quarries and prospecting areas, trails, rock features, food-gathering areas, and isolated finds. The presence of rock art is a good indicator of areas held sacred by the aboriginal inhabitants of the park. Kumeyaay and Cahuilla people have identified traditional cultural places and areas of the park held in esteem by living Native American communities, within the park.

APPENDIX 5.2—HISTORICAL RESOURCES

Almost the size of the State of Rhode Island, this more than 600,000-acre Park, is the largest state park in California, and among the largest state parks in the contiguous United States. Extending for sixty miles or so from north to south, its boundaries encroach upon three counties: San Diego, Imperial, and Riverside. While crossed by several paved highways, it contains areas that are nearly inaccessible to foot traffic, let alone automobiles. Despite this and other environmental extremes, historically the ABDSP has been witness to a number of hardy individuals who dealt with the desert in their own way. While some were "merely passing through," others sought to eke outan existence from the desert's resources.

Some of those individuals who's left their mark while passing through what is now ABDSP were Spanish Colonials who were seeking to establish overland trails connecting Old Mexico with California's nascent Spanish missions, presidios, and pueblos in order to strengthen Spain's colonization in California. Lt. Colonel Juan Bautista de Anza, who is immortalized in the Park name, led an exploratory expedition through the area during the winter of 1774–75. Guided by Sebastian Tarabal, a runaway Mission San Gabriel Indian, Anza followed ancient Native American trails leading through the Borrego Valley to the San Carlos Pass. Anza eventually reached San Gabriel Mission near Los Angeles. After having establishing a safe route through the lower Colorado Desert, in the winter of 1775–76, Anza led a second expedition composed of over 200 men, women and children and some 800 livestock to San Gabriel. From here, they continued northward to found the mission and presidio at San Francisco. Padre Pedro Font, chaplain and diarist of the second expedition, is remembered at Font's Point, the rock headland overlooking the Borrego Badlands.

Although the Spanish colonials did not settle in the area, they did leave a legacy of lyrical place names. For example, in December 1775 the de Anza party camped near the junction of the *Carrizo* and *San Felipe* creeks. The former was named after a native reed grass, while the latter honored a Roman Catholic saint. Other Spanish places named after Catholic saints as well as local fauna and flora include *San Sebastián*, *Santa Rosa*, *San Ysidro*, *Ocotillo*, *Mescal Bajado*, Piñon and *Coyote*. The last, Coyote Canyon, is notable because it was where one of the women members of the Anza Expedition gave birth to a healthy child on Christmas Eve 1775. A remarkable event, considering the harsh

traveling conditions.

The Spanish Colonials also gave lyrical names to geological features. For example, *Tierra Blanca* (White Earth), *Piedras Grandes* (Large Stones), *Dos Cabezas* (Two Heads), *Vallecito* (Little Valley), and *Agua Caliente* (Hot Water) can all be found within the Park's boundaries. *Vista Del Malpais* (Bad Country View), and *Arroyo Seco del Diablo* (The Devil's Dry Stream) warned travelers of the desert's hardships. However, it appears that they must have drawn a blank when naming *El Cañon Sin Nombre* (the Canyon Without A Name).

In 1990 and 1999 respectively, in recognition of the trail's significance, Congress designated the Anza trail as a National Historic Trail and a Millennium Trail. The Department of the Interior's National Park Service administers the trail in a cooperative partnership with federal, state, and local agencies, interested groups, and private landowners. Although NPS guides the preservation, development, and enjoyment of the trail through technical and limited financial assistance, the management of trail resources and rights-of-way remain with individual landowners, nonprofit groups, and federal, state, and local agencies.

Another important historical Spanish Colonial trail that travels through the park is the one pioneered by Lt. Pedro Fages. In 1772, while pursuing deserters from the San Diego presidio, he led his men down Oriflamme Canyon from the Cuyamaca Mountains through Mason Valley and along the Vallecito creek bed to Carrizo Creek. Traveling along the Carrizo Wash northeast to San Sebastián, his party turned northwest through Borrego Valley to the mouth of Coyote Canyon. When de Anza entered the canyon two years later, he actually noted Lt. Fages' tracks. The expedition's diarist Padre Francisco Garcés gave Fages credit for blazing *two* trails through what is now ABDSP: the precursor of the de Anza Trail from San Sebastián to the San Carlos Pass, and the western trail over the Cuyamaca Mountains to San Diego. It was also Fages, while patrolling the area along Vallecito Creek in 1782, whocame upon "a small spring of good water, near which there were three or four very tall palm trees." But although Lt. Fages was the first Euro-American to discover a grove of California's native palm tree, *Washingtonia filifera* (near the present Palm Spring at Vallecito Creek Road), popular history stillremembers de Anza, not Fages, as the trailblazer.

Normally, most Americans' introduction to California's hardy pioneers has been limited to tales of the "49ers" during the Gold Rush or settlers traveling west along the plains in Conestoga wagons. Unknown to most is the fact that almost 75 years prior to the "49ers", between 1776 and 1844, over 300 Spanish/Mexican colonists came to California along the de Anza Trail from Sonora, Mexico. The route was also used to introduce herds of horses and cattle into California, the basis of the province's economy during the Mexican era. Due to an uprising in 1781 by the Yuman Indians against Spanish encroachment near their villages at confluence of the Colorado and Gila rivers, the trail was relatively abandoned for the next forty-five years. In 1826, the newly

formed Republic of Mexico, which had gained its independence from Spain in 1821, reopened the trail in 1826. Instead of following de Anza's path through the Borrego Valley, *El Camino del Sonora*, and "the Sonora Road" as it was now called, traveled along the old Fages trail through the Carrizo and Vallecito valleys to Mason Valley. Here, the trail branched into two directions. The main trail continued northward to Los Angeles through San Felipe Valley along a trail pioneered in 1824 by Lt. Santiago Argüello of the San Diego presidio. The other followed the old Fages Trail up Oriflamme Valley through the Cuyamacas and southwesterly down to San Diego.

While officially the mail route between California and the Mexican mainland, couriers along the Sonoran Road shared the road with a steady number of Anglo-Americans. Among these was trapper Thomas Long "Peg Leg" Smith. Smith, who allegedly arrived in 1829, claimed to have discovered gold north of Borrego Springs. Jonathan Trumbull Warner, who was a member of an 1831 fur-trapping party, later settled on a ranch astride the road where the San Felipe Valley meets the Buena Vista Creek (outside the present park near today's Warner's Spring). Another was British naturalist Thomas Coulter. While collecting plant specimens in the San Felipe Valley 1832, Coulter sadly reported "the rapid decrease and approaching annihilation of the Indians." Sixteen years later, the natives would witness the inexorable advance of the Anglo-Americans as their armies used the Sonoran Road as one of their "invasion" routes into California. Members of Brigadier General Stephen Watts Kearny and his Dragoons traveled along the road to Warner's Ranch during the winter of 1846 before engaging the Californios at the Battle of San Pasqual. Following in Kearny's path were the men of the famous Mormon Battalion. Led by Lt. Colonel Philip St. George Cooke, they were marching from Council Bluffs, Iowa to reinforce American troops in California. Participating in the longest march in U.S. military history, they were also ordered to find a practical wagon route to California. During their difficult journey from the Colorado River to what is now ABDSP, they followed the Sonoran Road to Box Canyon. Too narrow for their wagons, they used axes (they had lost their picks and shovels while crossing the river) to hack out a wider passage through the narrow pass. After reaching San Diego on January 29, 1847, Colonel Cooke commended his men by stating that they "hewed a passage through a chasm of living rock . . .. Thus . . . we have discovered and made a road of great value to our country."

Colonel Cooke's statement rang prophetic after the war. With the signing of the Treaty of Guadalupe-Hidalgo ending the Mexican-American War in February 1848, California became a U.S. territory. Over the next three decades, the former Sonora Road through the park, now known as the Southern Emigrant Trail, was one of the heaviest traveled roads in the United States. Part of the only all-weather overland route between California and the East Coast, it funneled thousands of emigrants into the territory. This was especially true one year after James Marshall discovered gold at Sutter's Mill on January 24, 1848. Thousands of "49ers" used the road after trekking from Santa Fe, New Mexico to the Colorado River by way of the Santa Fe and Gila River trails. Among those seeking to make their fortune in the northern gold fields were thousands of

Mexican nationals. Instead of joining the Anglo-Americans along the trail, though, most avoided their former enemies by using the parallel de Anza Trail through Coyote Canyon. Along both routes were numerous campsites where natural springs could be found. However, a contemporary described the camps with having a "stench rising from the number of dead animals strewed about" often found in and polluting the springs. Besides human travelers, thousands of sheep and cattle were driven along the Southern Emigrant Route from Texan and Mexican ranches; after the difficult desert crossing, they rested and fattened up in the Laguna and Cuyamaca Mountains before being driven north to the gold fields.

The incessant human and animal traffic had a detrimental effect on the area's local Indian population. Besides having their water sources and native plants polluted and destroyed, the Indians were constantly harassed by the rapidly increasing Anglo-American population. Things came to a head in 1850 during the so-called "Garra Rebellion," when members of local tribes banded together to protest against San Diego County Board of Supervisors for levying a tax on their cattle and personal property. Led by Cupeño, Antonio Garra from the Warner's Springs area, the Indians attacked a number of Anglo-American settlements, including Warner's Ranch, which they destroyed. In retaliation, U.S. Army Major E. F. Fitzgerald led a force of San Diego volunteers to quell the rebellion. Headquartered at Santa Ysabel, Fitzgerald captured Garra and sent a contingent of his forces to the Los Coyotes village in Coyote Canyon. After the troops killed the chief and several warriors, they set fire to the village and rounded up the fleeing Indians. On December 25, 1851, after a military court martial, they executed four other chiefs near Middle Willows. As a result of the Garra Rebellion and its suppression, the Indians abandoned other villages in Coyote Canyon, eventually being forced to move to the Los Coyotes Reservation in 1891. The flooding of the canyon due to torrential rains in 1916 reportedly washed away all signs of the villages as well as the gravesites.

With the end of the last Indian uprising in southern California, immigrants were once again using the Southern Emigrant Trail through the park. The Army had set up a rudimentary depot at Vallecito in order to supply troopers escorting mule trains supplying Fort Yuma on the Colorado River. This added a degree of comfort to those traveling between the river and Warner's Ranch. Others traveling through in 1852, included members of the U.S.–Mexico Boundary Commission, whose work had been interrupted during the "Indian Trouble." Also utilizing the Emigrant Trail was a group of "Filibusters," armed soldiers of fortune returning from their failed attempt to seize ore-rich Sonoran mines. Common during the 1850s, the *filibusteros* were well-armed freebooters, usually unsuccessful "49ers", seeking to seize and colonize land in Mexico. Five years later, another filibuster, Henry A. Crabb, led a large force from Los Angeles along the trail to Sonora. Hoping to establish a mining and agricultural colony with the help of a local politico, he was eventually captured and executed. Where the filibusters failed, the United States government had been able to acquire almost 30,000 square miles of northern Mexico as part of the 1853 Gadsden Purchase. Besides extending the

southern boundaries of the Arizona and New Mexico territories south of the Gila River, it secured the Mesilla Valley near the Rio Grande, which was considered the most practicable route for a southern railroad to the Pacific.

As a result of the Gadsden Purchase, Secretary of War, Jefferson Davis ordered the survey of five possible routes for a transcontinental railroad connecting the Southeast to the Pacific Coast. One of these routes included the Emigrant Road. In November–December 1853, a survey party led by Army Lt. Robert S. Williamson investigated other possible routes through the park that included Jacumba Pass near the Park's southernmost boundary. It was one of Lt. Williamson's assistants, geologist William P. Blake, who "noticed the intensity and richness of the colors of the distant hills" to the west, which were "very striking and beautiful" with their red, blue, and purple hues possessing a remarkable clearness and depth. Blake was one of the first Anglo-Americans to appreciate the area for its natural beauty alone, a quality that would attract millions and lead to countless squabbles between those wanting to exploit the desert and those wishing to preserve it. Blake was sad to note that at Palm Spring, the California palms discovered by Lt. Fages over seventy years ago were

> . . . about thirty feet high [but] injured by fire and the persevering attacks of emigrants, who have cut down many of the finest of the group, as if determined that the only trees that grace the sandy avenue to the desert, and afford a cool shade for the springs, should be destroyed.

Of the five railroad surveys, the Army engineers recommended the route through the San Gorgonio Pass and the Coachella Valley as the best route for the proposed transcontinental railroad, with the sleepy pueblo of Los Angeles, not San Diego, as its terminus. San Diegans, who were planning on building a railroad of their own eastward to the Gila River, were desperate to establish direct overland communications with the east. In response, a number of local entrepreneurs hoped to take up the slack. Army veterans Joseph Swycaffer and Sam Warnock operated the first overland mail service between San Diego and Fort Yuma. Established in 1854, it carried military mail and dispatches between the two points using Vallecito Valley or the wagon road through Jacumba Pass and down Mountain Springs Grade near the Park's southern boundaries as an alternative route. At the latter Pete Larkins and Joe Stancliff operated a change and pack station. They also provided teams of oxen to haul heavy freight wagons up the grade's 30-degree incline.

In 1857 U.S. Postmaster General Aaron V. Brown awarded an interim contract to Northern Californian John Birch to establish mail service between San Antonio, Texas and San Diego. Part of the first transcontinental mail service in the nation, the San Diego & San Antonio Mail Line ran stagecoaches along that part of the Southern Emigrant Trail through ABDSP with stations at Carrizo Creek and Vallecitos. At Vallecito, passengers were transferred to mules for the journey up Oriflamme Canyon to what is now Cuyamaca Rancho State Park. Known as the "Jackass Mail," it continued along the old Fages Trail to San Diego. Mason Valley, between Vallecito

station and Oriflamme Canyon, is named for the driver of the first stagecoach, James E. Mason. Mason, who had assisted the 1852 railroad survey, homesteaded in the area in 1884. The route down Oriflamme Canyon to Mason Valley soon became known as the "Hay Road." James Lassitor would haul bales of wild oats from his homestead in the Cuyamacas to his store and hay station at Vallecito. San Diego's Jackass Mail continued to provide service off and on until 1861. It had been overshadowed in national importance in 1858 with the awarding of a permanent southern overland mail contract to Birch's East Coast rival, John Butterfield. The victim of sectional politics and rivalry, Birch had been originally chosen to receive the contract by Postmaster Brown, a Southerner. However, the President, Pennsylvanian James Buchanan, overruled him, giving the contract to his personal friend John Butterfield of New York instead.

Legendary in the annals of Western history, the 2,800-mile Southern Overland Mail Line ran overland mail and passenger from Tipton, Missouri, through Arkansas, Texas, the Arizona and New Mexico Territories, to California. Its 24-day one-way journey actually got the mail faster across country than by ocean-going vessels. Instead of using San Diego as its western terminus, though, it bypassed San Diego completely, heading north along the old Emigrant Trail through the ABDSP to Warner's Ranch. Here it continued north to Temecula and Los Angeles before terminating at San Francisco. Although the Butterfield Line had ended San Diego's hopes of becoming a transcontinental mail terminus, its legacy can still be felt in the park. Besides containing part of the original route along the old Emigrant Trail, the park contains the sites of two of the line's six San Diego stage station locations within its boundaries: Carrizo Springs and Palm Spring. Sections of Box Canyon were widened to facilitate the stagecoaches' passage. The line continued to run along the old Emigrant Trail until 1861, when the government directed that the mail be carried on a more northerly route through Salt Lake City and Sacramento.

Although abandoned by the stage lines, the old Emigrant Trail through ABDSP continued to serve an important purpose. During the Civil War, Federal troops still patrolled it and escorted supply wagons traveling between San Diego and Fort Yuma, which guarded the gateway into southern California from Secessionists. In order to do so, the Federals supplied San Felipe, Vallecito, and Carrizo Creek with barrels of water and supplies. Although there were no battles fought in California during the war, future combatants—Southern Sympathizers and troops loyal to the Union traveled along the trail to fight in the east. After the war, returning veterans and hundreds of displaced Southerners used the trail to start a new life in California. Several of the latter settled in the nearby Julian area after the discovery of gold in 1870. Interest in establishing a direct road between the Julian gold mines and the east allegedly resulted in the naming of Borrego Springs, and subsequently the valley, by the survey party. Apparently unfamiliar with the Spanish language, they erroneously spelled it "Borego," which remained on maps until the 1950s.

There is some conjecture regarding the etymology of the other half of ABDSP's name.

One desert historian has implied that the word *borrego*, which refers to domestic, not wild sheep, was given to the springs in the late 1872 when an attempt was made to establish a sheep ranch near them. According to the historian, *borrego* can also mean a "fool" or "simpleton" in colloquial Spanish, a term that the cattlemen, who ran them off, no doubt associated with the sheepherders.

During the post-Civil War period, another "road" through the park was improved. In 1866, Col. E. B. Williston raised $500 through public subscription (the Army had no money) to improve the old Swycaffer and Warnock military mail route through the Jacumba Pass and down Mountain Springs Grade to the desert below. By fall, stagecoaches of the J. J. Tomlinson & Company ran passengers and light freight, as well as the mail to troops stationed at Fort Yuma. Later, in 1869, John G. Capron took over the stage line's operation. At Mountain Springs Grade, the San Diego and Yuma Turnpike Company bought Larkin's and Stancliff's operation, and established a toll road through the pass in 1870. Sections of this road, including stone corrals, can still be seen in the park. The 195-mile San Diego–Yuma stage road began to siphon off passengers and freight from the 220-mile Southern Emigrant Trail at Coyote Wells. However the latter's importance as an "emigrant" route into California had already been reduced when San Francisco, not San Diego, became the terminus of a transcontinental railroad in 1869. Adding insult to injury, during the 1870s the Southern Pacific Railway extended its central valley line into Los Angeles. Instead of continuing on to San Diego, with its excellent harbor, it turned eastward through the San Gorgonio Pass down into the Coachella Valley. Continuing southeasterly to El Centro, the line finally connected with another line at Yuma in 1877, thereby making Los Angeles, not San Diego, the southern terminus of a transcontinental railroad. The new railroad made the old Southern Emigrant Trail through the Anza-Borrego™ Desert obsolete.

The failure to secure a railroad, while discouraging, failed to reduce San Diegans' optimism, especially those who regarded the Colorado Desert as their home. The names of many of these early settlers dot the Park's map. For example, in September 1883 French immigrant Paul Sentenac homesteaded 160 acres in Earthquake Valley (a.k.a. Shelter Valley) near Scissors Crossing, eventually adding an additional 160 acres in 1888. The following year his brother Pierre (Pete) filed for an adjoining claim. Described as "secretive," the Sentenacs, who initially prospected in the San Ysidro Mountains, ran cattle on their land; but some said that not all of their cattle had been purchased. Paul established a cattle camp at Yaqui Wells (near the present primitive campground), with a small cabin and well, which supplied water for a "string of watering troughs" for some "several hundred head of cattle." His brother Pierre also ran goats near his cabin at the entrance to the canyon that bears his family's name. Within the park lies Sentenac Canyon and Ciénaga (Sp. marsh). After the former was graded in 1921, it became the first automobile road into Borrego Valley from the west, helping to stimulate tourism and interest in the desert.

Other place names in ABDSP that recall the area's pioneer cattle industry include McCain Spring; Butler Canyon; Benson Dry Lake; Harper's Well Canyon and Flat; and Blair, Culp and Mason valleys. Sometimes, the existence of several locations with the same name root is a good indicator of historic land use. For example, north of Borrego Springs, between the Coyote and Santa Rosa Mountains, lies Clark Valley. Named for pioneer cattlemen Fred and Frank Clark, the valley also included Clark and Little Clark dry lakes. Reportedly, the Clarks dug the first permanent well in the 20th century (1906) at Clark Well.

What attracted pioneer ranchers to the Anza-Borrego™ Desert were the lush meadows, ample water, and mild winter climates. After a particularly wet winter, the desert offered a bounty of springtime flowers and native grasses. Cattlemen drove their herds down from the nearby coastal mountains around November, returning before the summer's heat dried up the forage. Among the earliest to do so were the Helm brothers, who ran cattle from the Warner Ranch/Montezuma Valley area in the late 1860s and early 1870s.

By the mid-1880s it was common practice to winter cattle in the desert. It has been estimated that as many as four to five thousand head of cattle could be found grazing in desert "cow camps" in a good year. The Park has also been witness to a number of major cattle drives. During the winter and spring of 1890 Ed Vail drove over 900 head of beef cattle from his brother's Empire Ranch east of Tucson, Arizona Territory to Warner's Ranch, which they leased. He and his vaqueros made the 65-day journey, which was done in protest of exorbitant railroad freight fees, along the old Emigrant Trail in ABDSP. After the drive, Ed Vail suggested at a meeting of California and Arizona cattlemen that they establish a safe cattle trail from Arizona to the southern California pasture areas by improving and utilizing the old Butterfield stations along the route. Instead of this happening the Southern Pacific Railroad agreed to roll back its cattle shipping rates if no more cattle drives were made. The next major cattle drive occurred in 1910. The Vail cowboys didn't lead the cattle from east to west though; they ran them eastward from Warner's Ranch along the old Butterfield Stagecoach road to El Centro. By this time Imperial Valley, through the irrigation of alfalfa fields, had become a great feeding ground for cattle. Many were driven there to be fattened up for the winter before being shipped to market. Additional cattle drives through the park occurred over the next twenty years, the last major one occurring in 1932. Cattle grazing in the desert had actually reached its peak during the 1920s. The establishment of the State Park and the economic depression during the 1930s began to curtail winter grazing on the desert lands. Yet limited winter grazing still continued in the Park as late as 1972.

No doubt the cattlemen's historic use of the Colorado Desert to free range their cattle had an effect on the native fauna. It will be up to the resource ecologists to examine the level of impact that over 100 years of cattle grazing has had on the desert ecology. They will also have to determine if, in the forty years since grazing has been legally excluded

from the Park, certain native grass species have reasserted themselves. However, Phil Brigandi's 1995 report on the livestock industry asserts that "The real impact on the vegetation of the Anza-Borrego™ Desert has not been due to grazing, it is due to water." Brigandi suggests that the increasing number of dry springs is an indicator of an overall change in the desert's environment. "[It] can [not] simply be written off to increased groundwater pumping," he says, and it is "not a recent change." Old-timers reported a decrease in the underlying aquifer as early as the 1930s. Brigandi quotes a 1934 newspaper article, which included an interview with Ed Mason, son of pioneer rancher James E. Mason. Mason, who had been born on the family's Mason Valley homestead in 1882, commented that it, as well as the rest of the former grazing areas, was all "dried up."

Scattered throughout the park are numerous artifacts ranging in size from piles of rusty cans to the remains of cabin sites and corrals that are associated with the area's historic cattle industry. Among the most impressive are two poured-concrete dams erected by Julius and Amby Harper in 1922. Four years earlier, Julius had discovered a large flat valley in the Pinyon Mountains northeast of Whale Peak. Now known as Harper's Flat, it and the adjoining Harper Canyon/Valley were well suited for winter grazing. While most cattlemen developed springs or dug wells to supply water for their herds, the Harpers had undertaken a more ambitious project. After grading a dirt road up from Earthquake Valley, they hauled supplies, wooden forms, and cement in order to erect two large concrete dams. Completed on June 17, 1922 (From an inscription on one of the dams), the dams were to be used to impound spring water in ponds. Unfortunately, the ponds quickly became useless, having been filled in by sandy runoff.

In conjunction with raising cattle, most of the early settlers were also involved in some form of mining. For example, the Sentenac brothers as well as the Clarks, all held mining claims in addition to their homesteads. No discussion on desert mining can be made without mentioning the dream of every mining claim—gold. Talk about gold in the Anza-Borrego™ Desert and the discussion invariably turns to the Lost Peg Leg Smith Mine—supposedly found and "lost" by its discoverer mountain man Thomas Long "Peg Leg" Smith (1801–1866) around 1829. For years prospectors and other curious "desert rats" have searched in vain for Smith's "lost" mine thought to be somewhere in the southern foothills of the Santa Rosa Mountains near the Borrego Badlands. None, as of yet, have ever discovered it, or if they have, are willing to reveal its location.

As mentioned previously, the organized search for gold occurred concurrently during the period of early homesteading and ranching activities. As the neighboring Julian gold fields eventually played out, prospectors gravitated eastward toward the nearby desert mountains and foothills. Prospector Jim Green's permanent camp at Borrego Springs became the nexus for gold prospecting in the area during the late 1880s and early 1900s. One prospector, Nicolas Swartz, is claimed to have taken over $18,000 in gold nuggets from his mine in Rockhouse Canyon in 1906.

While miners dug for gold in what is now ABDSP well into the early 20th century, they also searched for and extracted other mineral resources. Among these were calcite, used in optical equipment; tungsten, used extensively for light bulb filaments, electronic tubes, and heat-resistant steel; strontium, an ingredient in pyrotechnics and some greases; as well as uranium, for use in nuclear weapons and reactors. A colorful, but often overlooked, phase of the Park's extractive industries includes the futile search for petroleum and natural gas. During the turn of the last century, the growing demand for oil and gas products created a wave of speculative petroleum prospecting in California. Prospectors were sure that the sedimentary deposits located in Anza-Borrego™ were sure signs of potential oil sources. As many as seven oil companies drilled for oil and gas, all of which were unable to produce any appreciable results. Artifacts from this period litter the landscape, including trash deposits and abandoned mine sites.

The early 20th century saw an increase in attempts to settle the Anza-Borrego™ Desert area. This can be seen as the result of a land boom in Imperial Valley, due in part by the arrival of irrigation water from the Colorado River in 1901. With irrigation came a wave of agricultural/ranching activities, which resulted in speculative town building. By 1907 there were enough people living in the towns of El Centro, Calexico, Imperial, Brawley, and other smaller towns to warrant the creation of Imperial County. The excitement of reclaiming the desert naturally spilled over into Borrego Valley. Many homesteads, though, were soon abandoned; the heat, winds, and drifting sand dunes driving away all but the hardiest settlers. One observer noted, "It is mainly the jackrabbits that profit by the crops planted by the pioneers . . .."

The next and perhaps the most important phase of ABDSP's history began after World War I. First, a number of veterans took advantage of special homestead laws that made it easier for them to file homesteads. The second event was the completion of the original Julian–Kane Springs Road in 1925. Both brought potential settlers into the region, which in turn stimulated speculative real estate sales and promotion. That year the Borrego Valley Land Company along with the Borrego Fruitlands Association had been formed to promote agricultural land sales in Borrego Valley. The drilling of the first successful deep well on the Ensign Ranch (outside the park) in 1926, produced 1,000 gallons per minute and was proof enough to the land boomers that there was an ample supply of water in the aquifer beneath the valley's floor. Soon a number of ranches were established in the valley, growing alfalfa and winter vegetables. Within the park is the site of the A. A. Beaty Homestead at Coyote Canyon. Here, in 1926, Dr. Walter T. Swingle, who introduced commercial date growing in the Coachella Valley, planted several fruit-bearing date palms. Dr. Swingle's experiment highlighted the potential for commercial date production in Borrego Valley, convincing O. H. Ensign to introduce commercial date trees at his ranch the following year. By 1946, the Ensign Ranch boasted the largest pest-free date garden in the world. During the early days of ABDSP, park custodians reportedly had to haul water from the Ensign Ranch well to the Borrego Palm Canyon campground.

Once the primary water supply of the entire Borrego Valley region, wells like those on the Ensign and other ranches are slowly being threatened by a lowering aquifer. Stored in porous layers less than 100 feet below the desert surface, the basin of relatively pure water has been supplying the valley's irrigation needs for over 70 years. Today, 90 per cent of the well water goes to irrigate fields and golf greens. Hydrologists, who have been monitoring the more than 85 active wells in the Borrego Valley since 1982, now report that underground "water levels are falling significantly." Again, according to hydrologists, the water level in a well at the Park has fallen about 30 feet over the past thirteen years. They warn that if the trend continues, it will become more difficult and costly to pump subsurface water, the quality of which will suffer due to salt and other plant-killing mineral concentrations. This can already be seen in the Park mesquite thickets. These thickets, which are hundreds of years old, possess deep taproots that go down 100 feet or more. However, the trees are dying back, which indicates that the ground-water basin is declining below the taproots. While some believe that it is necessary to impose Draconian measures to conserve water, others not wishing to scare off real estate development feel that there is still enough water to go around, the wells just have to be dug deeper.

Water, or the lack of it during the speculative 1920s land rush, caused many new homesteads to go bust. Without access to the aquifer, they were unable to sustain their crops or animals. However those with access to water sources were marginally successful. Between 1926 and 1930 the Borrego Valley was dotted with a least twenty small farms, growing primarily winter vegetables for market in San Diego and El Centro. In 1929, members of the Borrego Valley Chamber of Commerce and Community Club initiated the grading of a dirt trail from Borrego Springs to Truckhaven, a small gas station on State Highway 99 (Now Highway 86). Passing through the present Park, the Truckhaven Trail was an attempt by Borregans to have a more direct route to transport farm produce to Imperial Valley markets.

During the 1920s, a booming national and regional economy brought at least 2 million newcomers to California, 1.5 million of who came to southern California. The combination of a growing urban and suburban population, plus improved roads and highways, along with more reliable automobiles, brought an increase in recreational automobile travel throughout southern California, especially to the Anza-Borrego™ Desert. Most had read of the desert's "magical aura" in the writings of John C. Van Dyke, Arthur Burdick, J. Smeaton Chase, and George Wharton James, and were attracted to the desert for its "solitude, mystery, and adventure." As early as 1895 the San Diego County Board of Supervisors called for the erection of signboards at desert watering holes, which offered a degree of safety to desert travelers. One of the first daring motorists to visit Anza-Borrego™ Desert for pleasure was Karl Bennis. In 1910 he reportedly drove his Jackson automobile from Warner Springs down Grapevine Canyon to Yaqui Well, then driving through the Narrows along what will eventually become the Old Borrego Springs Road into Borrego Valley. Soon after, Howard Baily

and Alfred A. Beaty began offering hunting trips and desert tours. By 1918 auto enthusiasts could also visit the desert's southern regions in the In-Ko-Pah and Jacumba Mountains by driving along an improved highway that was basically the old stage road from San Diego to Yuma through the Mt. Springs Pass. Incorporated into the national Lee Highway system in 1926, it brought auto-tourists to what is now the southern entrance of the Park to explore the old Emigrant Trail–Butterfield Stage route and other trails.

No other route through the desert, however, offered a more spectacular view of the Anza-Borrego™ Desert's southern region than that of the San Diego & Arizona Railway. Completed on November 15, 1919, it traveled from San Diego, along and crossing the California–Mexico International Border to Jacumba. Here it entered what is now ABDSP between the Round Mountain and Gray Mountain peaks. Traveling some 110 miles through the Park, its torturous route passes through several tunnels blasted out of solid granite and across a number of wooden trestles spanning deep gorges. Advertised nationally, the route offered passenger service up until the 1950s and introduced hundreds of passengers to the desert's rugged beauty.

It was during the prosperous "Roaring Twenties" that the idea for establishing ABDSP was born. First, in November 1928, California voters had overwhelmingly passed the $6 million California State Park bond issue, which allowed the state "to acquire lands for the State Park system." Second, the newly formed State Park Commission had asked internationally renowned Landscape Architect Frederick Law Olmstead to conduct a survey to identify potential park acquisitions. In his December 1928 report, he described the California deserts' fragile nature, particularly how any man-made disturbances could precipitate adverse effects that could take centuries to repair. Olmsted's comments set the basis for the Park System's Mission Statement: "As in the case of the redwood forests, only such public action by the present generation on an adequate scale can preserve this heritage for the people of the centuries to come."

In San Diego, the efforts of the Museum of Natural History's director Clinton G. Abbott and Museum Fellow Guy L. Fleming led local efforts to promote the State's acquisition of Borrego Palm and Thousand Palm (Salvador) Canyons. They were acting on the recommendations of Dr. Walter T. Swingle, who first suggested preserving the area as a state park. Acting as a volunteer assistant to the State Park Commission, Fleming surveyed the area and sent his recommendations to Olmstead. Influenced by Fleming's survey, Olmstead recommended that the proposed Borrego Palms Desert Park be set aside as . . ." an escape from the evidence of human control and manipulation of the earth, a charm of constantly growing value as the rest of the earth becomes more completely dominated by man's activities." Olmstead continued to say that "Nowhere else are casual thoughtless human changes in the landscape so irreparable, and nowhere else is it so important to control and completely protect wide areas."

News of the proposed park created a wave of land speculation by outside interests

hoping to develop Borrego Valley into a winter desert resort that would rival Coachella Valley's Palm Springs. Others, though, regarded this as a threat that would hamper efforts to acquire potential parkland by tying up or inflating real estate prices. In response, members of the State–County Parks and Beaches Association, a private park advocacy association, began to buy land and hold it in trust for the State. Among them, was San Diego businessman, philanthropist, and conservationist: George W. Marston, who purchased 2,320 acres in Borrego Palm Canyon and magnanimously deeded them to the State. He also convinced others to purchase and sell an additional 5,500 more acres, which were placed in trust.

Due to limited funds, the State was only able to procure 83,840 acres out 200,000 recommended by Olmstead and Fleming. Other private lands were eventually added. There were the additional problems of unclear titles and squatters. Also, the original 1854 federal land survey was grossly inaccurate, making it extremely difficult to determine park boundaries. In 1933 the State Park Commission announced Borrego Palms Desert State Park's boundaries. Marston and the State Park Commission subsequently lobbied U.S. Representative Phil D. Swing and Senator Hiram Johnson to introduce a bill in Congress that allowed for the transfer of almost 20,000 acres of federal land to the newly formed Borrego State Park.

L. Deming Tilton, a San Diego County landscape architect and planner hired by the State Park Commission to assist in the acquisition program, suggested that the Park should be expanded to at least 200,000 acres. He believed that the park's should include more land to prevent exploitation, which would impact the Park natural and historic resources. In 1936, over 365,000 additional acres from former federal lands were added.

As a result of the publishing of Herbert E. Bolton's translation of Lt. Col. Juan Bautista de Anza's diaries in 1930, there was a growing movement to change the Park's name to honor his memorial journeys. On March 15, 1938, the State Park Commission agreed to rename the Park the Anza Desert State Park, and divided it into four distinct units: Borrego Desert, Vallecito Desert, Carrizo Desert, and Salton Sea Desert.

Not everyone was interested in creating the largest State Park in the nation. Opposition came from the San Diego County Board of Supervisors. They feared that the state would allow the paving of the old Emigrant/Overland Stage Trail, thereby creating a "cannonball" highway between Los Angeles and Imperial Valley, bypassing San Diego. Another concern was that the Park was withdrawing land that could be used for agricultural and mining from the tax rolls. On the side of the State was the U.S. government's General Land Office, which "cannot refuse (the transfer) . . . solely because [it] . . . might be put to a so-called higher use than inclusion as a sate park." The San Diego Board of Supervisors inadvertently contributed to the state's cause when they hired Pomona College biology professor Philip Munz, an expert on desert flora, to conduct a botanical survey of the Vallecito and Carrizo units. Initially suppressed by the Board of Supervisors, Dr. Munz' report described the area thusly: "botanically, it is

one of the richest desert valleys I have ever seen." A concession of sorts was reached in 1941, when the State Park Commission agreed to delete certain potential agricultural and mining lands from the Park, as well as allow concessions for continued cattle grazing. The result of the opposition to the Park expansion resulted in years of delay to the acquisition program; the creation of irregular park boundaries and pockets of private ownership within the park; and the loss of much of the Borrego Valley. Finally, in December 1941, the State Park Commission dedicated the expanded ABDSP to the memory of Lt. Col. de Anza and all of the other early pioneers and settlers. During the ceremonies, California Department of Beaches and Parks representatives "pledged to preserve the park in its natural state so future generations also might enjoy its intrinsic qualities." Despite its 1941 dedication, the State didn't receive full patent to the federal lands until May 1948. Over the next few years, land swaps and exchanges with private landholders would eventually result in the Park's present outline.

During the twenty-odd years between the Park's inception and final acquisition, two major historic events affected the Park's development. The first was the Great Depression of the 1930s. During this time of widespread business stagnation and unemployment, President Franklin D. Roosevelt ordered the creation of the Civilian Conservation Corps (CCC) on April 5, 1933. Augmented by the 1933 Emergency Conservation Work Act, the CCC sought to relieve unemployment by providing work to restore the nation's natural resources. "Triple C's" would work on a number of key federally funded public works construction and resource conservation projects throughout the state. Between 1932 and 1941, the CCC was responsible for constructing over 1,500 buildings and structures throughout the California State Park system. Designed by National Park Service personnel, they reflected NPS's philosophy of integrating public buildings and other park facilities with the natural environment. Known today as "Park Rustic," an organic architecture that drew heavily on its surroundings, using vernacular building traditions, and emphasizing the use of natural, unfinished local building materials. After approval by Park supervisors, the CCC crews would begin construction. Collectively, surviving CCC-built structures represent the single largest and most geographically dispersed historic building type within the California State Park system.

Among the CCCs earliest projects was the grading and improvement of the automobile road through Sentenac Canyon and Yaqui Pass in 1932. Assisting the CCC crews were prisoners from the San Diego County Honor Farm at Yaqui Well. The current Tamarisk Grove Campground marks the site of the Honor Farm. With the completion of improvements to the Kane Springs Road, it was now easier to reach Borrego Valley and the Park. The older, rougher Grapevine Canyon road fell into disuse as more and more people frequented the much gentler grade through San Felipe Valley from Warner's Ranch. Between 1934 and 1936, CCC crews were highly active at the Park. First, they built a "spike camp," a temporary camp to facilitate their work assignments. Second, they constructed a campsite complex at the Borrego Palm Canyon Campground. Included among the camp improvements were tables, benches, cupboards, stoves,

ramadas, comfort stations, parking facilities, and water systems. The latter included the construction of a 10,000-gallon reservoir, a diversion dam, and settling tank. Fourth, CCC crews constructed a Custodian's Residence/Park Headquarters building and amphitheater near the campground. Its native stone and rustic wood construction were signature design elements of CCC-built buildings constructed throughout California state parks in the Palomar, Cuyamaca, and Borrego Palm Canyon units. Fifth, CCC crews created a number of side camps for visitors throughout the park. Sixth, a crew assigned to an engineering survey team assisted in the survey of the Park perimeter lines and a resurvey of park boundary stations. They also assisted in a preliminary survey of new roads, restricted truck trails, and multi-purpose trails throughout the park.

San Diego was slowly beginning to lift itself out of the depression by the time the CCCs completed work at Anza Desert State Park. In Imperial Valley, work began on the new All-American Canal, which would divert water from the Colorado River into the Coachella and Imperial Valleys. The water would help transform the valleys into the rich agricultural basin that it is today.

With the outbreak of World War II, the United State military turned sections of the park into a vast training center. In 1942, the U.S. Army appropriated over 27,000 acres in the Carrizo Badlands between Fish Creek and Coyote Mountains for use as an aerial bombing range. Referred to as the "Carrizo Impact Area," it was also used by the U.S. Navy for the same purpose. Activities included live bombing and the firing of wing-mounted rockets at vehicular targets. It wasn't until 1959 that the Navy curtailed aerial bombing at the Carrizo Impact Area. After initiating a bomb removal program, the Navy returned the land to DPR, which decided to reopen that section. This was a bit premature; the area had to be closed to the public when a discarded bomb exploded, killing a scrap dealer as he scrounged through the area. The Navy argued that it wasn't responsible for the man's death, since it could not guarantee that the entire unexploded ordinance was accounted for. Some of the bombs and rocket warheads could be buried as much as thirty feet deep in the sand or hillsides. As the land eroded, they would invariably come to the surface, waiting for the next hapless victim. Over the years, as park rangers patrol the area along jeep trails, they sometimes come across such remains, necessitating the notification of the Navy, which dispatches bomb disposal crews to disarm and remove the weapons. Because of the danger, the public is denied access to one of the Park most scenic areas. Besides scenic beauty, the southern section contains a forty-mile stretch of the historic Fages, Sonoran, Jackass Mail, Southern Emigrant, and Overland Stage Trails, Jackass Mail, Southern Emigrant, and Overland Stage Trails, including the site of the Carrizo Stage Station.

Besides the Carrizo Impact Area, both the Army and Navy used other areas within the park for aerial bombing and gunnery practice. The Army's Western Defense Command of the Southern California Sector appropriated 400 square miles of the park, including large amounts of privately held land. Reclassified as the "Borrego Maneuver Area," it

was intended to serve as a training area for General Patton's tank battalions to conduct desert field maneuvers. However, historian F. L. Orrell states emphatically in his 1991 report on recent military operations in the ABDSP that "Contrary to popular belief, none of the military activity in the . . . State Park can be attributed to the troops of General George S. Patton nor to those of any of his successors at the Desert Training Center in Riverside and Imperial Counties." Patton and his men were assigned to the Mojave Desert prior to being sent to the Mediterranean Theater, where they participated in the invasion of North Africa. The Army's activities in the park were limited to building several roads and facilities for training anti-aircraft gunnery units. Based at Camp Callan near Torrey Pines, San Diego, they bivouacked at the nearby Ensign Ranch. At Coyote Canyon and the north face of Borrego Mountain, gun crews practiced firing at radio-controlled or track-mounted self-propelled or towed targets. Under the command of the 11th Naval District at San Diego, Navy pilots were engaged at aerial training, which included aerial bombing, rocket firing, and machine gun strafing at the Carrizo Impact Area, Borrego (Military Wash), and Clark Dry Lake. Emergency landing fields were also located at Clark Dry Lake for use by pilots in trouble during practice or unable to make it back to auxiliary landing fields at El Centro, Holtville, or near the Salton Sea. The Navy's amphibious strike force along with the Marine Corps, were bivouacked at Camp Ensign; where they practiced driving military trucks at night, reportedly using the few gravel roads, and "cross-country" over the surrounding desert.

Other military-related activities conducted within the park included the testing of ground-based rockets. Assisted by Army units from Camp Callan, rocket scientists from Cal Tech experimented with test rockets north of Borrego Mountain. Although their experiments were unsuccessful, their attempts contributed to the United States advancement of rocketry, which, besides the atom bomb, was the most significant weapon development during World War II. After the war, scientists continued to use the park to conduct experiments. Starting in 1958, astronomers erected and enlarged a radio observatory facility at Clark Dry Lake. The facility's purpose was to observe the universe by listening to radio emissions emanating from quasars, pulsars, novas, and supernovas, and other celestial phenomena. Linked together by computers, the individual radio antennae arranged around a central lab building became one of the most powerful and versatile low frequency radio telescopes in the world. In 1986, with its funding gone, the radio observatory was abandoned. All that remain are several radio antennae, telephone poles, and a gravel road leading to the abandoned wood frame lab building. The complex is historically significant for the contributions it made to modern astronomy. At Clark Dry Lake, radio astronomers were able to observe and map the skies over yearlong periods. Among their momentous discoveries were the first millisecond pulsar, and the first observation of microbursts in the Sun's corona, as well as the existence of a black hole in the center of the Milky Way Galaxy.

In addition to the heavy use of state park land for military training, another area of the park played an important role during the war. North of the Truckhaven Trail Road,

near the south fork of Palm Canyon is the site of a calcite mine. Used in the manufacture of optical gunsights, sources of calcite were of strategic importance during the war. Because of this, the mine was one of the most important mining operations in the Western Hemisphere until the advent of synthetic calcite crystals.

Besides leaving hundreds of artifacts scattered across the desert, many of them still lethal, the military had another impact to the area. In order to facilitate access to the Borrego Valley and Camp Ensign, it ordered the further improvement of Yaqui Pass Road, which allowed for better automobile access to the valley. It soon became obsolete. Almost immediately after the war, renewed interest in the Borrego Valley for agricultural and resort development called for better access to the area. Improved electrical service allowed for the use of electric motors to pump water up from the aquifer, allowing for an increase in agricultural production, necessitating an increase in truck traffic. Electricity also allowed for the installation of air conditioners in homes and motels. From as early as the 1930s, local real estate developers and businessmen sought to turn the Borrego Valley into a winter desert resort, with the newly laid out town of Borrego Springs as the focal point. Air conditioning, cheap gas, and the proliferation of personal automobiles again sparked an increase in vacationing tourists to the area, which also necessitated improved roads and access. In 1946, the Borrego Springs Road was built, providing a less curving route into the valley from Highway 78 (the old Julian–Kane Springs Road). Plans also called for the surveying of Coyote Canyon as a possible location for a more direct road to Los Angeles.

Improved access to the valley stimulated interest in developing Borrego Springs as the gateway to one of the largest state parks in the nation. Besides automobile traffic, improved roads brought regularly scheduled bus service from San Diego. In addition, in 1949 a county airport was built, hoping, no doubt like the one at Palm Springs, to cater to the vacationing movie star or mogul.

Plans to develop Borrego Springs into a resort community to rival Palm Springs had an inexorable effect on the park. Business interests called for the damming of Coyote Canyon. The resulting reservoir would serve as a permanent source of water as well as a "sportsman's paradise." The proliferation of relatively inexpensive jeeps and other war-surplus four-wheel drive trucks created an entirely new recreational activity in the park. In 1949, off-road advocates held the first Anza Jeep–Cavalcade to promote a road through Coyote Canyon, connecting the valley to highway 74 to the north. Others called for improved roads through Montezuma Valley to Warner Springs and San Diego, and along Truckhaven Trail from Borrego Springs to the Salton Sea. Except for Coyote Canyon, the roads were eventually built. The Montezuma Grade Road in particular was mired in controversy. In 1953, A. A. Burnand, Jr., a principal owner of the Borrego Land and Development Company, petitioned the State Park Commission to allow for the road's building. He warned the commission that, if the road was not built, they would be personally responsible for "bottling up" the people living in Borrego Valley. Instead of having to drive down the San Felipe Grade, drivers would save,

according to Burnand, between forty and forty-five minutes driving time into town. State Division of Beaches and Parks officials were opposed to the new road, stating that it would only save less than 35 minutes and create a permanent scar on the landscape. Despite this, the park commission approved the road. It has been suggested that park commissioner Leo Carrillo, who was also honorary mayor of Borrego Springs, may have influenced his and the commission's vote. Completed in 1964, Montezuma Grade and the newly improved Borrego–Salton Seaway (the old Truckhaven Trail) brought more investors to the valley. They in turn used its strategic location in the heart of the Park to promote visitation, which they hoped would result in increased land sales.

The methods by which local boosters "sold" the park to visitors bordered on criminal behavior. Ignoring the fact that they were surrounded by a state park, they reportedly induced visitors to come to the area to hunt, dig up Indian ruins for artifacts, and collect geological and plant specimens. As early as 1948, the State Park Commission complained that "Hunters by the dozens are invading the park lands. Desert vehicles with four-wheel drive, capable of negotiating the barest trails, radiate out over our lands." It was becoming increasingly clear that it would take more than the present complement of one caretaker to protect the nearly half-million-acre park. After the war, between 1948 and 1949, park attendance jumped dramatically from 20,000 to over 60,000 visitors a year. As the result of widespread publicity given to a particularly lush wildflower bloom, as many as 5,000 vehicles brought some 15,000 visitors to the park in one day.

As a result, improvements were made in 1949 to the Borrego Palm Canyon Campground, including thirty-seven new campsites and twenty-nine automobile trailer spaces, and a new headquarters complex, including a staff residence, office, and service building. Additional personnel were assigned to the park. Seven park rangers were busy collecting visitor fees, assisting campers, cleaning refuse, locating State Park boundaries, conducting research into the Park natural and cultural history, and patrolling the park. The latter was especially problematic for the rangers on the lookout for illegal hunters and plant poachers who, according to ranger reports, were removing plants from State Park lands in order to replant them "at newly built houses in Borrego Valley." In 1952 a new campground, residence, and workshop were built at Tamarisk Grove, on the site of the 1929 Honor Farm. Nearly overwhelmed by the more than 79,000 visitors to the park that year, the decision was made to administer the park as two sections. Borrego State Park headquarters, located at Borrego Palm Canyon, took care of everything above Highway 78, except the new Tamarisk Grove Campground and Yaqui Pass. Conversely, the new Tamarisk Grove complex served as headquarters for the administration of the Anza Desert State Park, which included the Park lands south of Highway 78. This remained in effect until 1957, when the two were combined into the present Anza-Borrego Desert State Park®.

Under the new administration, park staff was nearly doubled, with sixteen rangers patrolling eight 60,000-acre districts: Sheep Canyon, Palo Verde, Tamarisk Grove, Blair

Valley, Culp Valley, Fish Creek, and two at Bow Willow. Primitive campgrounds were also established at Yaqui Pass, Fish Creek, Blair Valley, Dos Cabezas, and Peg Leg. Four new ranger outposts and radio-equipped four-wheel drive vehicles augmented the rangers, who were now trained in desert tracking, search and rescue methods. In order to educate the public on the desert's fragile nature, a park naturalist inaugurated programs that included ranger-guided nature walks, a self-guided nature trail at Palm Canyon, and automobile tours to Font's Point and Fish Creek. During this time efforts were made by park staff and outside agencies to inventory and catalog park plants and animals, as well as archaeological and geological resources. Assisting park personnel were interested groups like the Desert Protective Council, the Sierra Club, and the Anza-Borrego Natural History Association, which lobby to safeguard the entire desert, including the Park, for future generations to enjoy.

Forty-three years after the Park's reorganization, it is still beset by problems. Park staff must be alert continuously for poachers taking plants, animals, geological, and archaeological specimens, as well as those illegally driving vehicles off designated roads, prospecting/mining, drug use, and drug trafficking. Even Hollywood keeps the staff busy with the occasional movie shoots that invariably make marks on the fragile landscape. Hampering Park staff budget cutbacks, which reduce spending on necessary equipment and hiring. Other on-going issues include proponents who insist that a road be built through Coyote Canyon and criticism that conservationists are "over protective" of the desert, seeking to "stop progress and growth of (the Borrego Springs) community." If it is any consolation, the pressures facing ABDSP are not unique to the Park alone. All of California's deserts, as well as its beaches and mountain areas, are under pressure to expand their commercial and economic development, while increasing public access and use for recreational purposes. With the relentless expansion of Southern California's urban areas into former "wilderness" areas, new demands will be placed on ABDSP. The millions of annual visitors seeking escape from gridlock traffic and other pressures of urban life may actually love the desert to death.

APPENDIX 5.3—SCOPE OF COLLECTIONS STATEMENT

ANZA-BORREGO DESERT STATE PARK®
SCOPE OF COLLECTIONS STATEMENT

Prepared by
G.T. Jefferson
Associate State Archaeologist
District Paleontologist and Designated Collections Manager
January 30, 2002

Scope of Collections Statement approved by:

_____ Date:_____
Mark Jorgensen, Sector Superintendent
Anza-Borrego Desert State Park®, DPR

_____ Date:_____
David Van Cleve, District Superintendent
Colorado Desert District, DPR

5.5.1 INTRODUCTION

Anza-Borrego Desert State Park ® (ABDSP) is the largest State Park in California, covering over 600,000 acres. Most of the unit falls within the Colorado Desert of southeastern California, and rims the western side of the geologically active Salton Trough rift valley. Bounded on the west by the Peninsular Ranges, it spans from near sea level to over 6,200 feet in elevation. A diversity of modern biotic habitats representing desert floor to montane landscapes are encompassed within the park boundaries. Extensive desert badlands expose a thick stratigraphic section of late Cenozoic deposits that yield significant paleontological remains. Human use and occupation of the region includes late mid-Holocene prehistoric Native Americans through 18th century Spanish, 19th century American immigrations, and 20th century agricultural and military activities. These heterogeneous and enduring natural and cultural events and settings largely determine the character and scope of ABDSP collections.

The biochronological sequence of vertebrate fossils from ABDSP is of international significance, and paleontological materials comprise the major portion of the collection, totaling about 13,000 specimens. The fossils range from over 12 to less than 0.5 million years in age, and consist of paleobotanic, invertebrate, and vertebrate remains. Natural history collections are comprised primarily of herbarium specimens and zoological materials, including a large collection of bighorn sheep skulls. Archaeological and historical museum objects, which date back at lest 4,500 years, include significant archaeological stone tool assemblages and a large, significant sample of late prehistoric ceramic vessels.

Most ABDSP collections are adequately housed in the Colorado Desert District (CDD) Stout Research Center (DSRC), which includes laboratory and conservation space, collections storage, and a research library and archives.

Planning and other documents consulted are listed under *Sources and References* below. Of significance are: the ABDSP *Interpretive Prospectus* (Pozzi 1977), the collections inventories, and policies developed for the DSRC (Jefferson 1996, 1997, 1999, 2000), the ABDSP Enhancement Project documents (Enhancement Committee 1994, 1995), and the *Cultural Resources Management Handbook* (2001). This report closely follows *Guidelines for Writing a Scope of Collections Statement* (Clark et al. 2000). The General Plan process for ABDSP has completed the natural and cultural features inventory phase, and a draft plan document presently is under development.

5.5.2 DECLARATION OF PURPOSE OF UNIT

The ABDSP Mission Statement _reads:_

The mission of Anza-Borrego Desert State Park is to be the premier park in California in protecting and managing resources, inspiring and educating park patrons, and serving those needs of the public which are consistent with park objectives: to provide stewardship for the vast array of natural and cultural resources found throughout the park; to preserve the landscape and scenery of the park in a pristine condition; to inspire, educate, and instill a sense of wonder in park visitors about the values of the Colorado Desert; to provide facilities consistent with the enjoyment of the park which are clean and in good repair; to encourage employees, volunteers, and partners to be ambassadors of the park message throughout their involvement with other persons, agencies, organizations, and associations; to sustain a work environment which encourages good health, creativity, honesty, fellowship, and a positive exchange of ideas among employees and volunteers; to develop and maintain partnerships which are effective in helping to meet the objectives of the park; to provide programs which satisfy the multi-cultural needs of park visitors; to delight park visitors with the service they have received from our employees and volunteers.

The* Declaration of Purpose *(Pozzi 1977) reads:

The purpose of Anza-Borrego Desert State Park is to make available to the people forever, for their inspiration, enlightenment, and enjoyment, a spacious example of the plains, hills, and mountains of the Western Colorado Desert, embracing extensive zones of unimpaired natural integrity, and representing all the varied scenic, historic, scientific, and recreational resources of the region.

The function of the Department of Parks and Recreation at Anza-Borrego Desert State Park is to so manage the resources and values of the park as to perpetuate them for the unending benefit of the people in accordance with the purpose of the park; to interpret them fully and effectively; and to provide such facilities and services, consistent with the purpose of the park, as are necessary for the full enjoyment of the park by visitors.

5.5.4 MAJOR INTERPRETIVE THEMES, TOPICS, AND/OR PERIODS OF THE COLLECTION

"A primary interpretive theme is the evolution of the Anza-Borrego Desert landscape and biome" (Pozzi 1977). Subsequently planned themes focus on the role of water in landscape evolution, prehistoric conditions, and modern biotic and human adaptations (Enhancement Project 1994, 1995). Geological development of the landscape, late Cenozoic paleontological settings, biological adaptations and ecological patterns in arid and semi arid environments, prehistorical human adaptations and settlement in the desert conditions, and historical and modern land-use patterns are planned interpretive elements.

The primary geological periods represented by the paleontological collection are middle Miocene, 12–15 million years (MY), and late Miocene and Pliocene through middle late Pleistocene 6.5–0.5 MY. These periods include the Blancan and Irvingtonian North American Land Mammal Ages, and span the Pliocene/Pleistocene epoch's boundary. The earliest and latest stratigraphic records for a number of extinct vertebrate taxa are documented at ABDSP. The marine invertebrate fossils are related to Caribbean forms and document a time prior to the formation of the Isthmus of Panama. The terrestrial vertebrate faunal interchange between Asia and North America, and between North and South America are represented in the fossil record.

Lithic artifacts, primarily from the southern part of the Park, are classed by some investigators as belonging to the Malpais or San Dieguito traditions, and may be mid- to early Holocene. Mid-Holocene artifacts include Archaic (Elko period) materials. Late prehistoric artifacts result from Cahuilla and/or Kumeyaay (Ipai, Tipai, and Kamia) occupation. Only a few historic artifacts date to early European occupation. Most historic materials are mid-20th century military items.

5.5.5 HISTORY OF THE COLLECTION

Although marine invertebrate fossils were reported from the Colorado Desert region in the mid-19th century, paleontological investigations in what was to become ABDSP began in 1893 and continue today. However, most of the invertebrate fossil collection is comprised of specimens recovered as a result of academic and ABDSP staff research projects during the past several decades (Jefferson 1999).

Vertebrate fossils were first recognized and reported from ABDSP in 1901, some 32 years before the Park was established. During the mid-1930s, a team from the Frick Laboratory of the American Museum of Natural History actively collected in ABDSP. Following World War II, paleontological investigations, and studies did not resume until the early mid-1950s, after H. Garbani brought the Park's rich fossil deposits to the attention of T. Downs, Curator of the Vertebrate Paleontology Section at the Natural History Museum of Los Angeles County (LACM). Garbani is credited with drawing attention to the paleontological resources and initiating the most productive phase of paleontological research in the region. Downs, J. White, and others associated with the LACM continued active work through the 1980s

as Curator of Paleontology at Imperial Valley College Museum (IVCM) in El Centro. In the early 1970's, G. Miller began an active and productive collection and curation program of ABDSP vertebrate fossils that lasted through the end of the 1980's.

The IVCM collections were acquired by ABDSP in 1992. Following lengthy negotiations with LACM, the LACM vertebrate collections, recovered under State permits from ABDSP, were transferred to the CDD in 1997. IVCM and LACM materials now form the core of the DSRC vertebrate paleontological collection (Jefferson 1996, 1999).

In the later 1990s, the CDD and ABDSP established agreements for research and study and/or issued collecting permits (DPR 412-P) to a number of universities for graduate student and professional work on ABDSP geological and paleontological resources. Also, ABDSP and CDD staff and volunteers have continued intensive survey, specimen recovery and conservation, and research and publication on ABDSP fossils. These activities have resulted in a steady growth of the paleontological collection.

The first systematic archaeological studies of the region were performed by M. Rogers of the San Diego Museum of Man during the early decades of this century through the 1940s. From the end of World War II through the late 1950s and early 1960s, archaeological materials were recovered during investigative surveys by C. Meighan of the University of California Los Angeles, and W. Wallace of the University of Southern California. The content of the archaeological collection has significantly increased over the past several decades as the result of surveys and research by R. Begole of ABDSP, site specific research studies (under DPR 412-A permit), resource and site assessments, and from mitigated development projects (Jefferson 1997). Archaeological investigations at prehistoric and historic sites continue to contribute specimens to the collection.

The natural history collections have grown substantially over the past 40 years. The herbarium collection was started in the 1960s, and has been actively growing sense the late 1990s, in part a result of the General Plan inventory. Entomological specimens were acquired also as a result of the General Plan inventory in the early 1990s.

In the early 1960s, R. Banks and associates collected and prepared skulls and pelts of small mammals from ABDSP, mostly Chiroptera and Rodentia. In addition, ABDSP staff has acquired a small collection of varied mammalian osteological specimens. Many of these date from the 1950s and 1960s. The *Ovis canadensis* skull sample was acquired primarily through field collection by ABDSP staff since the early 1960s. Recovery and curation of scientifically significant biological specimens by CDD staff and by graduate students and professionals under research collecting permits (DPR 65) is ongoing.

5.5.6 COLLECTION CONTENT SUMMARY

Paleontological materials primarily include fossil wood, coelenterate, arthropod, echinoid and mollusc shells, vertebrate skeletal and dental elements, and invertebrate and vertebrate ichnites. Over 500 taxa have been recorded. This wide variety of organisms represents a broad diversity of paleoenvironments/landscapes. Fossils have been recovered from the following geological settings: terrestrial vertebrates from mid-Miocene (10–12 MY) paralimnic deposits; pollen, marine invertebrates and vertebrates from late Miocene (6.5–4.5 MY) marine deposits; terrestrial woods and aquatic and terrestrial vertebrates from late-Miocene (4.5–3 MY) deltaic deposits; pollen and lacustrine invertebrates from late Miocene, Pliocene and Pleistocene lacustrine deposits; and terrestrial and aquatic vertebrates from late Miocene, Pliocene, and Pleistocene (3–0.5 MY) terrestrial deposits.

The vertebrate fossil collection includes seven primary type specimens: *Equus enormus* (giant horse), the nominal *Navahoceros alethai* (mountain deer), *Chelipus therates* (claw-footed hunter track), *Felipeda* sp. cf. *Felis* sp. (cat track), *Pumaeichnium milleri* (Miller's puma track), *Hippipeda downsi* (Downs' horse track), and

Lamaichnium borregoensis (Borrego llama track). Other primary holotypes are presently held by LACM. Also of highest significance, are a complete *Geochelone* sp. (giant tortoise) carapace and plastron, the largest *Prarmylodon harlani* (Harlan's giant ground sloth) osteoderm layer known, and the most complete skeleton of *Mammuthus meridionalis* (southern mammoth) from North America. A large, possibly new species of *Paleolama* (fossil llama) remains to be identified/described.

Archaic through late prehistoric artifacts include a wide variety of flaked and ground stone tools, shell and wood items, ecofacts (plant materials, shells, and bone), and a large and significant collection of *ollas*. A majority of the historic artifacts consist of hardware and/or munitions from World War II military exercises.

Although limited in scope and number, research-level synoptic natural history collections encompass botany, invertebrate and vertebrate zoology, and geology. A modest botanical collection has been conserved. The small collection of invertebrates includes arachnoids, insects, molluscs, and other non-arthropods. Modern vertebrates are represented by a modest collection of prepared reptiles (primarily alcohol-preserved specimens), mammals (primarily skins and skeletons), and a large collection of *Ovis canadensis cremnobates* skulls, mandibles and horn sheaths. Zoological specimens also include several sub-Recent specimens of *Antilocapra americana* which is locally extinct.

Some paleontological, archaeological/historical, and biological museum objects are on exhibit at the ABDSP Visitor Center. All other paleontological and natural history specimens are housed at the DSRC. Cultural artifacts from ABDSP and the Ocotillo Wells OHVSRA are stored at the DPR Archaeology Laboratory in West Sacramento, the Borrego Archaeological Research Center at ABDSP, and the DSRC.

5.5.6 USES OF THE COLLECTION

The collections support resource management, research, and interpretive activities of ABDSP and CDD staff, and research by the scientific community. The botanical, entomological, and zoological collections primarily serve as synoptic or reference specimens for identification purposes.

Some specimens or artifacts may be made available for ABDSP Visitor Center exhibits. However, hands-on use of core museum objects is highly discouraged and requires written permission (Morris 2001).

Because of the highly sensitive nature of associated records and locality/site data, access to, and use of this information must be restricted to qualified DPR, university, and/or museum staff. Presentation of specific locality data in a public format is prohibited.

5.5.7 RELATIONSHIP OF THE COLLECTION WITH OTHER STATE PARKS AND OTHER NON-DPR INSTITUTIONS

Marine invertebrate fossils recovered from the ABDSP region also are housed at the California Academy of Sciences, California State University San Diego, Natural History Museum of Los Angeles County (in part previously at the California Institute of Technology), San Diego Natural History Museum, Stanford University, University of California Berkeley, University of California Los Angeles, University of California Riverside, University of Chicago, and the U.S. Geological Survey. Fossil vertebrates collected from the ABDSP region also are housed at the American Museum of Natural History and the San Diego Natural History Museum. No other State Parks maintain comparable paleontological collections.

Large collections of similar, late prehistoric and historic archaeological materials from the ABDSP area are also conserved at the C. W. Bowers Memorial Museum, the Phoebe Hearst Museum, University of California Berkeley, the San Diego Museum of Man, and the University of California Los Angeles. The

content of museum collections of archaeological materials recovered from locations immediately south of ABDSP in the Coyote Mountains and Yuha Desert, Imperial and southeastern San Diego Counties, is summarized by M. Weide (*see* Jefferson 1997).

San Diego Natural History Museum, Santa Ana Botanical Garden, and Natural History Museum of Los Angeles County maintain research-level botanical and/or zoological collections that include specimens representative of southeastern California and Colorado Desert habitats. The San Diego Natural History Museum houses a representative collection of ABDSP specimens in their herbarium.

5.5.8 COLLECTION DEVELOPMENT GOALS

The following are recommended acquisitions and deaccessions:

Paleontological specimens, archaeological and historical artifacts, and biological specimens recovered from ABDSP through mitigated development, directed/permitted research and intensive and cyclic resource surveys, and/or other management activities will be housed and conserved at the DSRC. All accessory and provenance data for such specimens will be archived at the DSRC.

Inventory and assessment of paleontological specimens housed at non-DPR institutions should be performed and the data so gathered should be archived at the DSRC.

The return of ABDSP and Ocotillo Wells OHVSRA archaeological collections to the DSRC from the DPR Archaeological Laboratory in West Sacramento is recommended. Inventory and assessment of all archaeological and historical artifacts from ABDSP now housed at non-DPR institutions should be performed as a prelude to evaluating and pursuing their return and/or transfer to the DSRC.

The acquisition of large multiple samples of single species, necessary for biological systematic or population studies, are not recommended. Building such collections at the DSRC would be a significant investment and duplicate existing collections at regional institutions such as the Natural History Museum of Los Angeles County, Rancho Santa Ana Botanic Garden, and San Diego Natural History Museum.

Should the study of any biological group entail the collection of specimens, a request for representative prepared specimens should be considered as part of any research collecting permit or CEQA mitigating conditions. This policy is expected to gradually increase the number of botanical specimens, and add both skeletal and alcohol preparations to the vertebrate zoology collection.

Deaccession or transfer to other DPR units of all specimens, artifacts or museum objects not directly related to the major themes, topics, or periods of the collection from ABDSP or those of the CDD and DSRC is recommended. Common items that lack any provenance data should be removed from the core collections and incorporated with the ABDSP or other DPR unit interpretive materials if suitable. Replicas that are not considered art/history objects of them selves should be treated similarly. Valuable replicas may receive property numbers for inventory purposes, but should not be catalogued as core museum objects.

All ABDSP collections data require verification. Specimens with limited or no supportive information and specimens inappropriate for the ABDSP/CDD collections focus need to be identified. Deaccessioning of such materials is considered appropriate.

5.5.9 COLLECTION MANAGEMENT GOALS

As assemblages of unique and non-renewable museum objects representative of extinct biotic environments and cultural landscapes, paleontological and archaeological/historical collections will be

conserved in perpetuity for their inherent scientific and educational value.

Conservation and curatorial practices for biotic specimens will be maintained at the highest standards such that scientific and educational values are not compromised.

5.5.10 SOURCES AND REFERENCES

California Department of Parks and Recreation 1997. Department Operations Manual (DOM), Museum Collections Management Chapter 2000.

California Department of Parks and Recreation 2001. Cultural resources management handbook. Cultural Resources Division.

California State Parks Museum Services Section 1998. Museum collections management handbook volume I: basic references. California Department of Parks and Recreation, Manuscript on File, Sacramento and Colorado Desert District Stout Research Center.

Clark, R., S. Drew, S. Feazel, W. Franklin, G. Jefferson, E. Moore, and M. Tucker 2000. Guidelines for writing a scope of collections statement. California Department of Parks and Recreation, Manuscript on File, Sacramento and Colorado Desert District Stout Research Center 63 p.

Enhancement Committee 1994. Enhancement project feasibility study sub-committee report. Document on File, Department of Parks and Recreation, California Colorado Desert District, Borrego Springs 26p.

Enhancement Committee 1995. Enhancement project feasibility study sub-committee report on recommended site plan, facility design and cost estimate. Document on File, Department of Parks and Recreation, California Colorado Desert District, Borrego Springs 29p.

Jefferson, G.T. 1996. Colorado Desert District paleontologic resources and collections management policy. Document on File, Department of Parks and Recreation Museum Services, Sacramento, and California Colorado Desert District, Borrego Springs 36p

----- 1997. Anza-Borrego Desert State Park®, archaeological and historic collections management. Document on File, Department of Parks and Recreation, California Colorado Desert District, Borrego Springs 25p.

----- 1999. Anza-Borrego Desert State Park®, paleontologic resources inventory and management recommendations. Document on File, California Department of Parks and Recreation, Colorado District Stout Research Center, 36p.

----- 2000. Colorado Desert District Stout Research Center natural history collections inventory, scope and management. Document on File, Department of Parks and Recreation, California Colorado Desert District, Borrego Springs 4p.

Morris, P. 2001. Museum collections management handbook volume II: practices and procedures. California Department of Parks and Recreation, Manuscript on File, Sacramento, and Colorado Desert District Stout Research Center.

Pozzi, D. 1977. Anza-Borrego Desert State Park® interpretive prospectus. California Department of Parks and Recreation, Manuscript on File, Sacramento and Colorado Desert District Stout Research Center 37 p.

APPENDIX 5.4—NOP

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

FILED
Gregory J. Smith, Recorder/County Clerk
FEB 22 2002
BY _____ DEPUTY

NOTICE OF PREPARATION

The California Department of Parks and Recreation is the Lead Agency under the requirements of the California Environmental Quality Act and is considering the preparation of a program level (first-tier) environmental document for the project identified below.

PROJECT TITLE: Anza-Borrego Desert State Park General Plan

PROJECT LOCATION: San Diego County, Imperial County, Riverside County

Anza-Borrego Desert State Park, the largest unit in the California State Park system, is over 640,000 acres of land that spans across the eastern portion of San Diego County, stretching east into Imperial County and north into Riverside County. The park is approximately a two-hour drive from San Diego, Riverside and Palm Springs. The park is near the communities of Borrego Springs, Ocotillo, Canebrake, and Julian. The Mid-Western edge of Anza-Borrego Desert State Park borders with Cuyamaca Rancho State Park and Cleveland National Forest. The majority of the park is classified as a state Wilderness area.

PROJECT DESCRIPTION: To meet requirements set forth in Section 5002.2 of the Public Resources Code and section 4332 of the title 14 of the California Administration Code, The California Department of Parks and Recreation is preparing a General Plan for the park. This plan will delineate a number of resource management zones and a set of goals and guidelines will be developed for each zone, which will guide park management, specific project management, and implementation. These goals and guidelines will address recreational, operational, interpretive, and resource management opportunities and constraints consistent with the classifications of State Park and State Wilderness, as set forth in section 5019.53 and 5019.68 of the Public Resources Code and with Department Resource Management Directives. The General Plan will not actually locate or design facilities, but instead will provide goals and guidelines for the appropriate types, locations, and designs of facilities that may be proposed in the future. The General Plan will establish the primary interpretive themes for interpretive programs and activities.

Current facilities within the park include the visitor center, which is located near the park headquarters at 200 Palm Canyon Drive Borrego Springs, CA. The park contains four developed campgrounds: Borrego Palm Canyon, Vern Whitaker Horse Camp, Tamarisk Grove and Bow Willow Campground. Primitive campgrounds provide a more rugged experience and offer less facilities (Culp

Valley, Sheep Canyon, Arroyo Salado, Yaqui Pass, Yaqui Well, Fish Creek, Blair Valley, Mountain Palm Springs). Over 500 miles of dirt roads and extensive trails are available for recreational activities.

POSSIBLE ENVIRONMENTAL EFFECTS: The project has potential effects on geologic features, erosion, water quality, transportation, biological resources, fire and geologic hazards, aesthetics, cultural resources, the natural environment and recreation. By establishing management zones, goals and guidelines, the General Plan will endeavor to identify broad level avoidance, mitigation measures, and policies to reduce potential impacts of future projects and activities to a level below significance. However, additional environmental review will be conducted as these projects and any corresponding mitigation measures are proposed.

PUBLIC MEETINGS: The California Department of Parks and Recreation has an active public involvement program for the development of this plan through ongoing workshops. The first three workshops focused on General Plan issues and were held in Borrego Springs on April 27, 2000, San Diego on June 20, 2000, and Manhattan Beach on June 22, 2000. Three alternative management plans were presented at workshops at the following locations: San Diego on June 14, 2001, Riverside on June 21, 2001, and Borrego Springs on October 17, 2001. The next public workshop is currently scheduled for April 18, 2002 at the Borrego Springs High School, at which time the preferred alternative plan will be presented.

PLAN DEVELOPMENT & ENVIRONMENTAL REVIEW: Once written and prepared, the Draft General Plan, including an environmental analysis section, will be made available for public review and comment in accordance with the California Environmental Quality Act (CEQA). The Draft General Plan will then be refined, and responses to public comments prepared. The plan will then be presented along with public comments, and responses to comments, to the California State Parks and Recreation Commission for approval at the public hearing.

Site specific management plans or facility development plans will be subsequently prepared in conformance with the approved General Plan and CEQA, as funding becomes available. The Department intends to develop a roads and trails management plan for the park. Specific management plans will go through a separate environmental and public review process in accordance with CEQA.

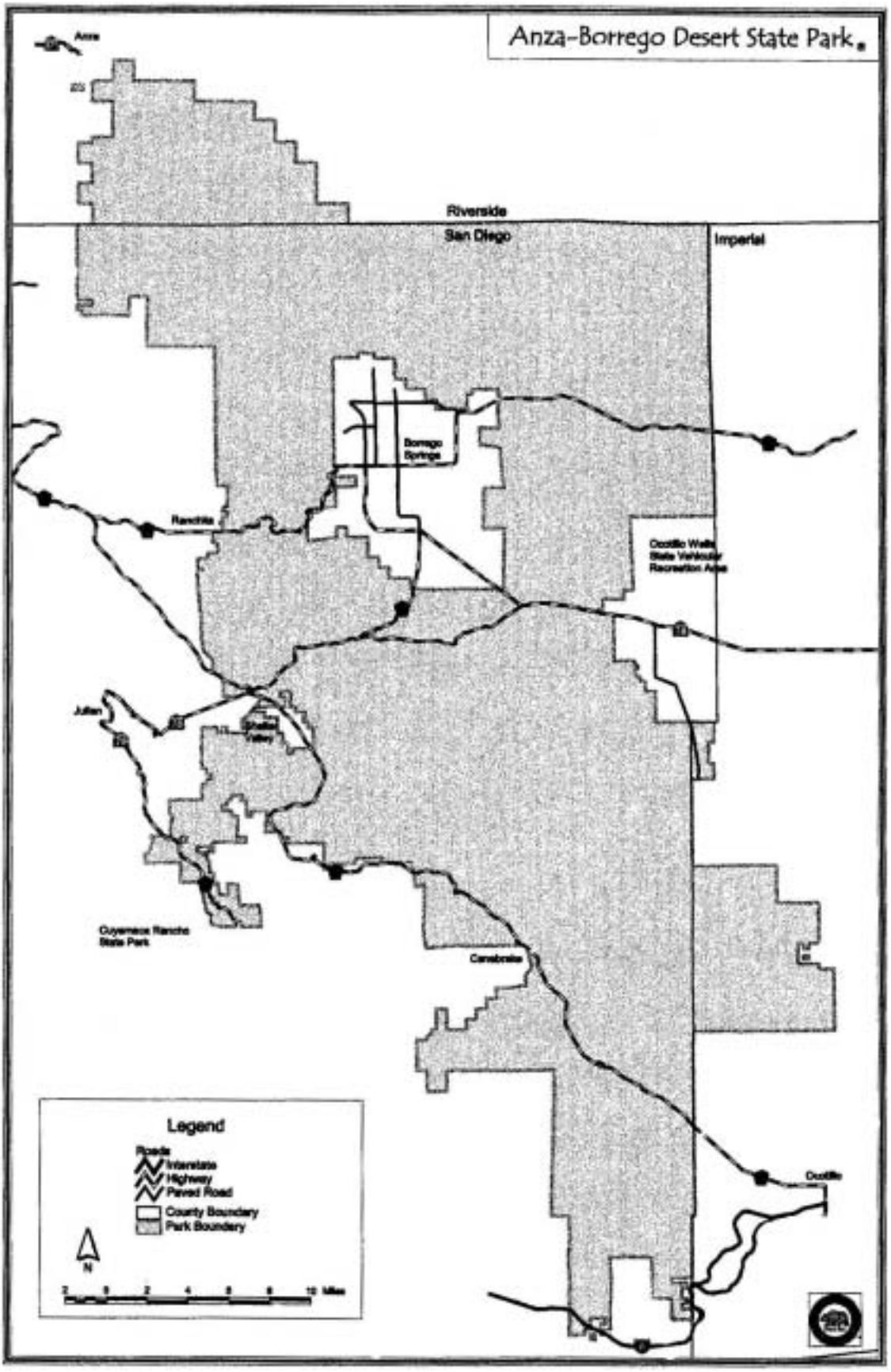
We need to know the views of your agency or organization as to the scope and content of the environmental information that is germane to your agency's or organization's statutory responsibilities in connection with the proposed project. Your response must be sent to the address below not later than thirty (30) days after the receipt of this notice. We would appreciate the name of a contact person in your agency.

DEPARTMENT OF PARKS AND RECREATION CONTACT PERSON

Michelle Fredrickson, Assistant Environmental Coordinator or
Tina Robinson, Associate Park and Recreation Specialist
California Department of Parks and Recreation
Southern Service Center
8885 Rio San Diego Drive, Suite 270
San Diego, CA 92108

(619) 220-5300

FILED IN THE OFFICE OF THE COUNTY CLERK
SAN DIEGO COUNTY ON FEB 22 2002
POSTED FEB 22 2002 REMOVED MAR 25 2002
RETURNED TO AGENCY ON MAR 25 2002
DEPUTY


Anza-Borrego Desert State Park
Riverside
San Diego
Imperial
Borrego Springs
Ranchita
Ocotillo Wells State Vehicular Recreation Area
Julian
Shelter Valley
Cuyamaca Rancho State Park
Cuyamaca
Ocotillo
Legend
Roads
Interstate
Highway
Paved Road
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Park Boundary
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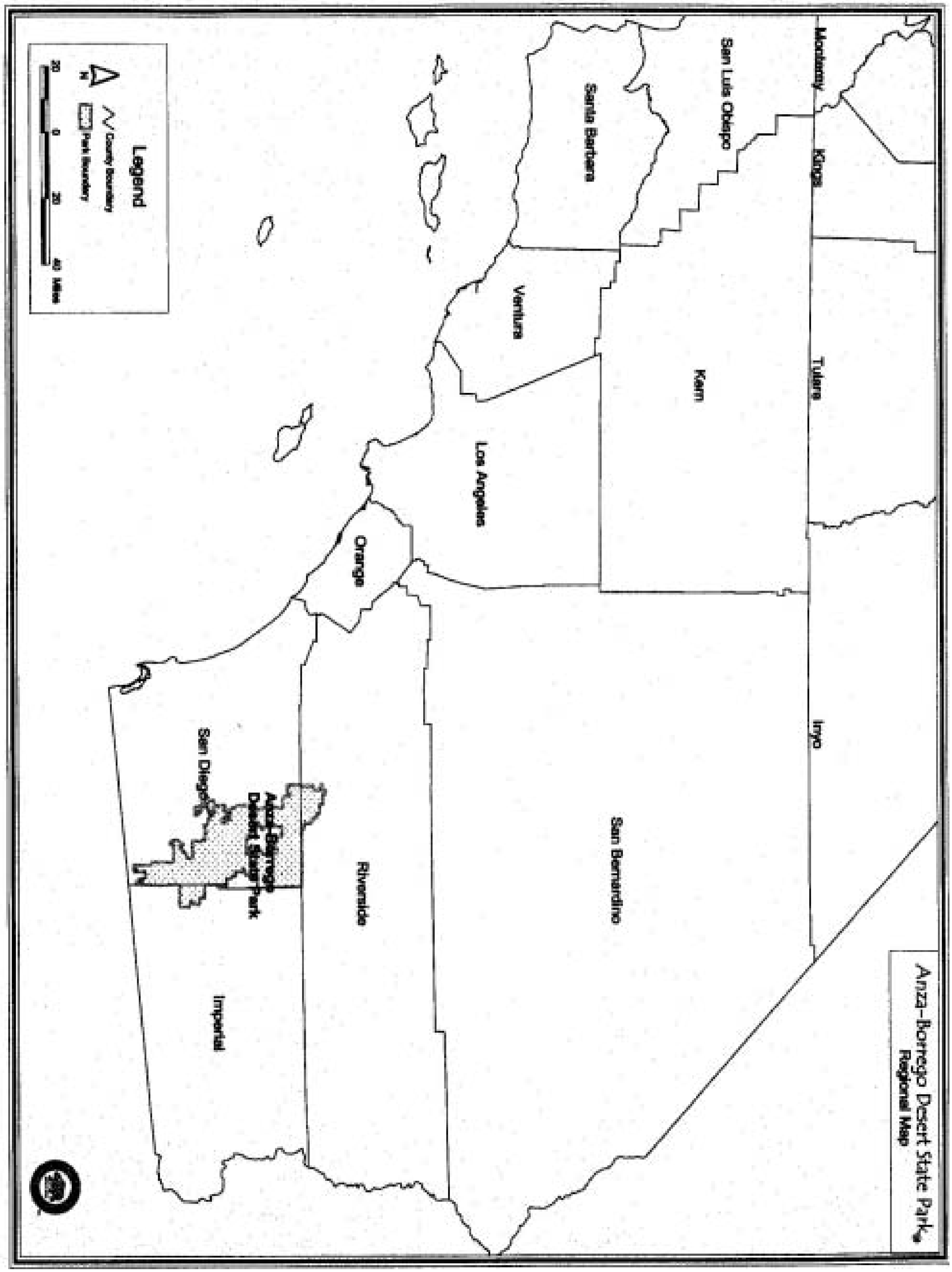
Anza-Borrego Desert State Park
Regional Map
Legend
County Boundary
Park Boundary
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Monterey
San Luis Obispo
Kings
Santa Barbara
Tulare
Kern
Ventura
Los Angeles
Orange
Inyo
San Bernardino
Riverside
San Diego
Anza-Borrego Desert State Park
Imperial

STATE OF CALIFORNIA

GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

State Clearinghouse

Gray Davis
GOVERNOR

Steven A. Nissen
DIRECTOR

Notice of Preparation

February 11, 2002

To: Reviewing Agencies

Re: Anza-Borrego Desert State Park
SCH# 2002021060

Attached for your review and comment is the Notice of Preparation (NOP) for the Anza-Borrego Desert State Park draft Environmental Impact Report (EIR).

Responsible agencies must transmit their comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of the NOP from the Lead Agency. This is a courtesy notice provided by the State Clearinghouse with a reminder for you to comment in a timely manner. We encourage other agencies to also respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

Tina Robinson
Department of Parks and Recreation
8885 Rio San Diego Drive
San Diego, CA 92108

with a copy to the State Clearinghouse in the Office of Planning and Research. Please refer to the SCH number noted above in all correspondence concerning this project.

If you have any questions about the environmental document review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

Scott Morgan
Project Analyst, State Clearinghouse

Attachments
cc: Lead Agency

1400 TENTH STREET P.O. BOX 3044 SACRAMENTO, CALIFORNIA 95812-3044
916-445-0613 FAX 916-323-3018 WWW.OPR.CA.GOV/CLEARINGHOUSE.HTML

Document Details Report
State Clearinghouse Data Base

SCH# 2002021060
Project Title Anza-Borrego Desert State Park
Lead Agency Parks and Recreation, Department of

Type NOP Notice of Preparation

Description To meet requirements set forth in Section 5002.2 of the Public Resources Code and Section 4332 of Title 14 of the California Administration Code, the California Department of Parks and Recreation is preparing a General Plan for the park. This plan will delineate a number of resource management zones and a set of goals and guidelines will be developed for each zone, which will guide park management, specific project management and implementation. These goals and guidelines will address recreational, operational, interpretive, and resource management opportunities and constraints.

Lead Agency Contact

Name Tina Robinson
Agency Department of Parks and Recreation
Phone 619-220-5300 **Fax**
email
Address 8885 Rio San Diego Drive
City San Diego **State** CA **Zip** 92108

Project Location

County San Diego, Riverside, Imperial
City
Region
Cross Streets County Roads S-2, S-3, S-22
Parcel No.
Township **Range** **Section** **Base**

Proximity to:

Highways 79, 78, I-80
Airports
Railways (abandoned) San Diego/Yuma RR
Waterways
Schools
Land Use State Park/State Wilderness

Project Issues Air Quality; Archaeologic-Historic; Coastal Zone; Drainage/Absorption; Flood Plain/Flooding; Geologic/Seismic; Noise; Population/Housing Balance; Public Services; Vegetation; Wetland/Riparian; Landuse

Reviewing Agencies Resources Agency; Department of Conservation; Department of Forestry and Fire Protection; Office of Historic Preservation; Department of Fish and Game, Region 5; Department of Fish and Game, Region 6; Native American Heritage Commission; State Lands Commission; Caltrans, District 8; Caltrans, District 11; California Highway Patrol; Caltrans, Division of Transportation Planning; Department of General Services; Regional Water Quality Control Board, Region 7

Date Received 02/11/2002 **Start of Review** 02/11/2002 **End of Review** 03/12/2002

Note: Blanks in data fields result from insufficient information provided by lead agency.

NOP Distribution List

County: San Diego, Riverside, Imperial SCH# 2002021060

Resources Agency

- [■] **Resources Agency**
  Nadell Gayou
- [ ] **Dept. of Boating & Waterways**
  Bill Curry
- [ ] **California Coastal Commission**
  Elizabeth A. Fuchs
- [■] **Dept. of Conservation**
  Roseanne Taylor
- [■] **Dept. of Forestry & Fire Protection**
  Allen Robertson
- [■] **Office of Historic Preservation**
  Hans Kreutzberg
- **Dept of Parks & Recreation**
  B. Noah Tilghman
  Environmental Stewardship Section
- [ ] **Reclamation Board**
  Pam Bruner
- [ ] **S.F. Bay Conservation & Dev't. Comm.**
  Steve McAdam
- [ ] **Dept. of Water Resources**
  Resources Agency
  Nadell Gayou

Health & Welfare

- [ ] **Health & Welfare**
  Wayne Hubbard
  Dept. of Health/Drinking Water

Food & Agriculture

- [ ] **Food & Agriculture**
  Steve Shaffer
  Dept. of Food and Agriculture

Fish and Game

- [ ] **Dept. of Fish & Game**
  Scott Flint
  Environmental Services Division
- [ ] **Dept. of Fish & Game 1**
  Donald Koch
  Region 1
- [ ] **Dept. of Fish & Game 2**
  Banky Curtis
  Region 2
- [ ] **Dept. of Fish & Game 3**
  Robert Floerke
  Region 3
- [ ] **Dept. of Fish & Game 4**
  William Laudermilk
  Region 4
- [■] **Dept. of Fish & Game 5**
  Don Chadwick
  Region 5, Habitat Conservation Program
- [■] **Dept. of Fish & Game 6**
  Gabrina Gatchel
  Region 6, Habitat Conservation Program
- [ ] **Dept. of Fish & Game 6 I/M**
  Tammy Allen
  Region 6, Inyo/Mono, Habitat Conservation Program
- [ ] **Dept. of Fish & Game M**
  Tom Napoli
  Marine Region

Independent Commissions

- [ ] **California Energy Commission**
  Environmental Office
- [■] **Native American Heritage Comm.**
  Debbie Treadway
- [ ] **Public Utilities Commission**
  Ken Lewis
- [■] **State Lands Commission**
  Betty Silva
- [ ] **Governor's Office of Planning & Research**
  State Clearinghouse Planner
- [ ] **Colorado River Board**
  Gerald R. Zimmerman
- [ ] **Tahoe Regional Planning Agency (TRPA)**
  Lyn Barnett
- [ ] **Office of Emergency Services**
  John Rowden, Manager
- [ ] **Delta Protection Commission**
  Debby Eddy
- [ ] **Santa Monica Mountains Conservancy**
  Paul Edelman

Dept. of Transportation

- [ ] **Dept. of Transportation 1**
  IGR/Planning
  District 1
- [ ] **Dept. of Transportation 2**
  Vicki Roe
  Local, Development Review,
  District 2
- [ ] **Dept. of Transportation 3**
  Jeff Pulverman
  District 3
- [ ] **Dept. of Transportation 4**
  Jean Finney
  District 4
- [ ] **Dept. of Transportation 5**
  James Kilmer
  District 5
- [ ] **Dept. of Transportation 6**
  Marc Birnbaum
  District 6
- [ ] **Dept. of Transportation 7**
  Stephen J. Buswell
  District 7
- [■] **Dept. of Transportation 8**
  Mike Sim
  District 8
- [ ] **Dept. of Transportation 9**
  Colleen O'Brien
  District 9
- [ ] **Dept. of Transportation 10**
  Chris Sayre
  District 10
- [■] **Dept. of Transportation 11**
  Lou Salazar
  District 11
- [ ] **Dept. of Transportation 12**
  Aileen Kennedy
  District 12

Business, Trans & Housing

- [ ] **Housing & Community Development**
  Cathy Creswell
  Housing Policy Division
- [ ] **Caltrans - Division of Aeronautics**
  Sandy Hesnard
- [■] **California Highway Patrol**
  Lt. Julie Page
  Office of Special Projects
- [■] **Dept. of Transportation**
  Ron Helgeson
  Caltrans - Planning
- [ ] **Dept. of General Services**
  Robert Sleppy
  Environmental Services Section

Air Resources Board

- [ ] Airport Projects
  Jim Lerner
- [ ] Transportation Projects
  Kurt Karperos
- [ ] Industrial Projects
  Mike Tollstrup

- [ ] **California Integrated Waste Management Board**
  Sue O'Leary
- [ ] **State Water Resources Control Board**
  Diane Edwards
  Division of Clean Water Programs
- [ ] **State Water Resources Control Board**
  Greg Frantz
  Division of Water Quality
- [ ] **State Water Resouces Control Board**
  Mike Falkenstein
  Division of Water Rights
- [ ] **Dept. of Toxic Substances Control**
  CEQA Tracking Center

Regional Water Quality Control Board (RWQCB)

- [ ] **RWQCB 1**
  Cathleen Hudson
  North Coast Region (1)
- [ ] **RWQCB 2**
  Environmental Document Coordinator
  San Francisco Bay Region (2)
- [ ] **RWQCB 3**
  Central Coast Region (3)
- [ ] **RWQCB 4**
  Jonathan Bishop
  Los Angeles Region (4)
- [ ] **RWQCB 5S**
  Central Valley Region (5)
  - [ ] **RWQCB 5F**
    Central Valley Region (5)
    Fresno Branch Office
  - [ ] **RWQCB 5R**
    Central Valley Region (5)
    Redding Branch Office
- [ ] **RWQCB 6**
  Lahontan Region (6)
  - [ ] **RWQCB 6V**
    Lahontan Region (6)
    Victorville Branch Office
- [■] **RWQCB 7**
  Colorado River Basin Region (7)
- [ ] **RWQCB 8**
  Santa Ana Region (8)
- [ ] **RWQCB 9**
  San Diego Region (9)

Notice of Completion & Environmental Document Transmittal

SCH# 2002021060

Mail to: State Clearinghouse-Office of Planning & Research, 1400 Tenth Street, Room 222
P.O. Box 3044, Sacramento, California 95812-3044 • 916/445-0613

Project Title: Anza-Borrego Desert State Park
Lead Agency: California Department of Parks and Recreation — Contact Person: Tina Robinson
Street Address: 8885 Rio San Diego Drive — Phone: (619) 220-5300
City: San Diego — Zip: 92108 — County: San Diego

Project Location:
County: San Diego, Riverside, and Imperial Counties — City/Nearest Community: Borrego Springs
Cross Streets: County Roads S-2, S-3, S-22 — Zip Code: _____ — Total Acres 640,000
Assessor's Parcel No. _____ — Section: _____ — Twp. _____ — Range: _____ — Base: _____
Within 2 Miles: State Hwy 79, 78, I-8 — Waterways: _____
Airports: _____ — Railways: Abandoned San Diego/Yuma RR — Schools: _____

Document Type:
CEQA: ☒ NOP ☐ Early Cons ☐ Neg Dec ☐ Draft EIR ☐ Supplement/Subsequent EIR (Prior SCH No.) _____ ☐ Other _____
NEPA: ☐ NOI ☐ EA ☐ Draft EIS ☐ FONSI ☐ Other: ☐ Joint Document ☐ Final Document ☐ Other _____

RECEIVED
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STATE CLEARING HOUSE

Local Action Type:
☐ General Plan Update ☐ General Plan Amendment ☒ General Plan Element ☐ Community Plan
☐ Specific Plan ☐ Master Plan ☐ Planned Unit Development ☐ Site Plan
☐ Rezone ☐ Prezone ☐ Use Permit ☐ Land Division (Subdivision, etc.)
☐ Annexation ☐ Redevelopment ☐ Coastal Permit ☐ Other _____

Development Type:
☐ Residential: Units _____ Acres _____
☐ Office: Sq ft. _____ Acres _____ Employees _____
☐ Commercial: Sq ft. _____ Acres _____ Employees _____
☐ Industrial: Sq ft. _____ Acres _____ Employees _____
☐ Educational
☒ Recreational
☐ Water Facilities: Type _____ MGD _____
☐ Transportation: Type _____
☐ Mining: Mineral _____
☐ Power: Type _____ Watts _____
☐ Waste Treatment: Type _____
☐ Hazardous Waste: Type _____
☐ Other:

Funding (approx.): Federal $ _____ State $ _____ Total $ _____

Project Issues Discussed in Document:
☐ Aesthetic/Visual
☐ Agricultural Land
☒ Air Quality
☒ Archeological/Historical
☒ Coastal Zone
☒ Drainage/Absorption
☐ Economic/Jobs
☐ Fiscal
☒ Flood Plain/Flooding
☐ Forest Land/Fire Hazard
☒ Geologic/Seismic
☐ Minerals
☒ Noise
☒ Population/Housing Balance
☒ Public Services/Facilities
☐ Recreation/Parks
☐ Schools/Universities
☐ Septic Systems
☐ Sewer Capacity
☐ Soil Erosion/Compaction/Grading
☐ Solid Waste
☐ Toxic/Hazardous
☐ Traffic/Circulation
☒ Vegetation
☐ Water Quality
☐ Water Supply/Groundwater
☒ Wetland/Riparian
☐ Wildlife
☐ Growth Inducing
☒ Landuse
☐ Cumulative Effects
☐ Other

Present Land Use/Zoning/General Plan Designation:
State Park/State Wilderness

Project Description: To meet requirements set forth in Section 5002.2 of the Public Resources Code and section 4332 of the title 14 of the California Administration Code, The California Department of Parks and Recreation is preparing a General Plan for the park. This plan will delineate a number of resource management zones and a set of goals and guidelines will be developed for each zone, which will guide park management, specific project management, and implementation. These goals and guidelines will address recreational, operational, interpretive, and resource management opportunities and constraints

consistent with the classifications of State Park and State Wilderness, as set forth in section 5019.53 and 5019.68 of the Public Resources Code and with Department Resource Management Directives. The General Plan will not actually locate or design facilities, but instead will provide goals and guidelines for the appropriate types, locations, and designs of facilities that may be proposed in the future. The General Plan will establish the primary interpretive themes for interpretive programs and activities.

AUGUST 1999

FORM 0608 (2)

Reviewing Agencies Checklist

KEY
S = Document sent by lead agency
X = Document sent by SCH
✓ = Suggested distribution

_____ Resources Agency
_____ Boating & Waterways
_____ Coastal Commission
_____ Coastal Conservancy
_____ Colorado River Board
_____ Conservation
S_ Fish & Game
_____ Forestry & Fire Protection
_____ Office of Historic Preservation
S_ Parks & Recreation
_____ Reclamation Board
_____ S.F. Bay Conservation & Development Commission
_____ Water Resources (DWR)

Business, Transportation & Housing
_____ Aeronautics
_____ California Highway Patrol
S_ CALTRANS District # 11
_____ Department of Transportation Planning (headquarters)
_____ Housing & Community Development

_____ Food & Agriculture

Health & Welfare
_____ Health Services _____

State & Consumer Services
_____ General Services
_____ OLA (Schools)

Environmental Protection Agency
_____ Air Resources Board
_____ California Waste Management Board
_____ SWRCB: Clean Water Grants
_____ SWRCB: Delta Unit
_____ SWRCB: Water Quality
_____ Regional WQCB # _____ - _____ (_____)

Youth & Adult Corrections
_____ Corrections

_____ Independent Commissions & Offices
_____ Energy Commission
S_ Native American Heritage Commission
_____ Public Utilities Commission
_____ Santa Monica Mountains Conservancy
_____ State Lands Commission
_____ Tahoe Regional Planning Agency
_____ Other _____

Public Review Period (to be filled in by lead agency)

Starting Date **February 8, 2002** Ending Date **March 9, 2002**

Signature Tina Robin Date February 6, 2002

Lead Agency (Complete if applicable):
Consulting firm: _____
Address: _____
City/State/Zip: _____
Contact: _____
Phone: (___) _____

Applicant: _____
City/State/Zip: _____

Phone: (___) _____

For SCH Use Only:

Date Received at SCH _____
Date Review Starts _____
Date to Agencies _____
Date to SCH _____
Clearance Date _____
Notes:

STATE OF CALIFORNIA - THE RESOURCES AGENCY GRAY DAVIS, Governor

DEPARTMENT OF FISH AND GAME
South Coast Region
4949 Viewridge Avenue
San Diego, California 92123
(858) 467-4201
(858) 467-4235 FAX

March 12, 2002

Ms. Tina Robinson
Associate Park and Recreation Specialist
California Department of Parks and Recreation
Southern Service Center
8885 Rio San Diego Drive, Suite 270
San Diego CA 92198

Comments on the Notice of Preparation of a Draft Environmental Impact Report for the Anza Borrego State Park General Plan (SCH# 2002021060)

Dear Ms. Robinson :

The Department of Fish and Game (Department) appreciates this opportunity to comment on the above-referenced project, relative to impacts to biological resources. The Department is a Trustee Agency and a Responsible Agency pursuant to the California Environmental Quality Act (CEQA), Sections 15386 and 15381 respectively. As a Trustee Agency, the Department must be consulted by the Lead Agency during the preparation and public review for project-specific CEQA documents. As a Trustee Agency, the Department reviews proposed projects, comments on their impacts, and determines whether the mitigation measures or alternatives proposed are feasible and appropriate. Pursuant to Section 1802 of the Fish and Game Code, the Department has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants and habitat necessary for biologically sustainable populations of those species. Under the California Endangered Species Act, it is the policy of the State to conserve, protect, restore, and enhance any endangered species or any threatened species and its habitat (Section 2052 of the Fish and Game Code). The Department also administers the Natural Community Conservation Planning Program (NCCP). We look forward to working with you on the proposed development of the General Plan, which represents a unique opportunity to protect the biological resources within the State Park.

The proposed General Plan will delineate a number of resource management zones and a set of goals and guidelines will be developed for each zone which will guide park management, specific project management, and implementation. These goals and guidelines will address recreational, operational, interpretive, and resource management opportunities and constraints. The General Plan will not locate or design facilities, but will provide goals and guidelines for the appropriate types, locations, and designs of facilities that may be proposed in the future. Additional environmental review will be conducted as site specific management plans and future projects and any corresponding mitigation measures are prepared / proposed. Regarding potential impacts on biological resources, the Environmental Checklist and Explanation of

Answers states, "The General Plan calls for an ongoing study to monitor sensitive species and their habitats as related to management zones. Should a sensitive resource be identified, facilities will be designed and constructed to avoid or minimize the impact. Guidelines within the General Plan protect and enhance park resources i.e., view sheds, cultural resources, wildlife and plants."

To enable the Department to adequately review and comment on the proposed project from the standpoint of the protection of plants, fish and wildlife, we recommend the following information be included in the DEIR:

1. A complete discussion of the purpose and need for, and description of, the proposed project.

2. A complete list and assessment of the flora and fauna within and surrounding each resource management zone (RMZ) delineated in the General Plan, with particular emphasis upon identifying State or federally listed rare, threatened, endangered, or proposed candidate species, California Species-of-Special Concern and/or State Protected or Fully Protected species, and any locally unique species and sensitive habitats. Depending on the size of each RMZ, we believe it would be useful to provide a separate analysis for each one. Specifically, the DEIR should include:

   a. A thorough assessment of Rare Natural Communities on site and within each RMZ, following the Department's Guidelines for Assessing Impacts to Rare, Threatened, and Endangered Plants and Natural Communities (Attachment 1; revised May 8, 2000).

   b. A current inventory of the biological resources associated with each habitat type within each RMZ. The Department's California Natural Diversity Data Base in Sacramento should be contacted at (916) 327-5960 to obtain current information on any previously reported sensitive species and habitat, including Significant Natural Areas identified under Chapter 12 of the Fish and Game Code.

   c. An inventory of rare, threatened, and endangered species within and surrounding each RMZ. This should include animal species that pass through an RMZ, but do not necessarily reside in it. Species to be addressed should include all those which meet the CEQA definition (see CEQA Guidelines, Section 15380).

   d. Discussions regarding seasonal variations in use by sensitive species of each RMZ, using acceptable species-specific survey procedures as determined through consultation with the Department. Focused species-specific surveys, conducted in conformance with established protocols at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable, are required.

3. If any specific construction / development is contemplated during, and resulting from, the development of the General Plan (including roads or trails pursuant to the proposed roads

and trails management component) within the project area, a thorough discussion of direct, indirect, and cumulative impacts expected to adversely affect biological resources. All facets of the project should be included in this assessment. Specifically, the DEIR should provide:

a. Specific acreage and descriptions of the types of wetlands, coastal sage scrub, and other sensitive habitats that will or may be affected by the proposed project or project alternatives. Maps and tables should be used to summarize such information.

b. Discussions regarding the regional setting, pursuant to the CEQA Guidelines, Section 15125(a), with special emphasis on resources that are rare or unique to the region that would be affected by the project. This discussion is critical to an assessment of environmental impacts.

c. Detailed discussions, including both qualitative and quantitative analyses, of the potentially affected listed and sensitive species (fish, wildlife, plants), and their habitats on the proposed project site, area of impact, and alternative sites, including information pertaining to their local status and distribution. The anticipated or real impacts of the project on these species and habitats should be fully addressed.

d. Discussions regarding indirect project impacts on biological resources, including resources in nearby public lands, open space, adjacent natural habitats, riparian ecosystems, and any designated and/or proposed NCCP reserve lands. Impacts on, and maintenance of, wildlife corridor/movement areas, including access to undisturbed habitats in adjacent areas, should be fully evaluated and provided. A discussion of potential adverse impacts from lighting, noise, human activity, exotic species, and drainage. The latter subject should address: project-related changes on drainage patterns on and downstream of the project site; the volume, velocity, and frequency of existing and post-project surface flows; polluted runoff; soil erosion and/or sedimentation in streams and water bodies; and post-project fate of runoff from the project site.

e. Discussions regarding possible conflicts resulting from wildlife-human interactions at the interface between the development project and natural habitats. The zoning of areas for development projects or other uses that are nearby or adjacent to natural areas may inadvertently contribute to wildlife-human interactions.

f. An analysis of cumulative effects, as described under CEQA Guidelines, Section 15130. General and specific plans, and past, present, and anticipated future projects, should be analyzed concerning their impacts on similar plant communities and wildlife habitats.

g. If applicable, an analysis of the effect that the project may have on completion and implementation of regional and/or subregional conservation programs. Under Section

2800 through Section 2840 of the Fish and Game Code, the Department, through the NCCP program, is coordinating with local jurisdictions, landowners, and the Federal Government to preserve local and regional biological diversity. Coastal sage scrub is the first natural community to be planned for under the NCCP program. The Department recommends that the Lead Agency ensure that the development of this and other proposed projects do not preclude long-term preserve planning options and that projects conform with other requirements of the NCCP program. Jurisdictions participating in the NCCP program should assess specific projects for consistency with the NCCP Conservation Guidelines. Additionally, the jurisdictions should quantify and qualify: 1) the amount of coastal sage scrub within their boundaries; 2) the acreage of coastal sage scrub habitat removed by individual projects; and 3) any acreage set aside for mitigation. This information should be kept in an updated ledger system.

4. Mitigation measures for adverse project-related impacts on sensitive plants, animals, and habitats. Measures to fully avoid and otherwise protect Rare Natural Communities (Attachment 2) from project-related impacts. The Department considers these communities as threatened habitats having both regional and local significance.

   Mitigation measures should emphasize avoidance, and where avoidance is infeasible, reduction of project impacts. For unavoidable impacts, off-site mitigation through acquisition and preservation in perpetuity of the affected habitats should be addressed. The Department generally does not support the use of relocation, salvage, and/or transplantation as mitigation for impacts on rare, threatened, or endangered species. Studies have shown that these efforts are experimental in nature and largely unsuccessful.

   This discussion should include measures to perpetually protect the targeted habitat values where preservation and/or restoration is proposed. The objective should be to offset the project-induced qualitative and quantitative losses of wildlife habitat values. Issues that should be addressed include restrictions on access, proposed land dedications, monitoring and management programs, control of illegal dumping, water pollution, increased human intrusion, etc. Plans for restoration and revegetation should be prepared by persons with expertise in southern California ecosystems and native plant revegetation techniques. Each plan should include, at a minimum: (a) the location of the mitigation site; (b) the plant species to be used; (c) a schematic depicting the mitigation area; (d) time of year that planting will occur; (e) a description of the irrigation methodology; (f) measures to control exotic vegetation on site; (g) success criteria; (h) a detailed monitoring program; (i) contingency measures should the success criteria not be met; and (j) identification of the entity(ies) that will guarantee achieving the success criteria and provide for conservation of the mitigation site in perpetuity.

   Mitigation measures to alleviate indirect project impacts on biological resources must be included, including measures to minimize changes in the hydrologic regimes on site, and

means to convey runoff without damaging biological resources, including the morphology of on-site and downstream habitats.

5. Descriptions and analyses of a range of alternatives to ensure that alternatives to the proposed project are fully considered and evaluated. The analyses must include alternatives that avoid or otherwise reduce impacts to sensitive biological resources. Specific alternative locations should be evaluated in areas of lower resource sensitivity where appropriate.

The Department has responsibility for the conservation of wetland and riparian habitats. It is the policy of the Department to strongly discourage development in or conversion of wetlands. We oppose any development or conversion which would result in a reduction of wetland acreage or wetland habitat values, unless, at a minimum, project mitigation assures there will be "no net loss" of either wetland habitat values or acreage. Development and conversion include but are not limited to conversion to subsurface drains, placement of fill or building of structures within the wetland, and channelization or removal of materials from the streambed. All wetlands and watercourses, whether intermittent or perennial, should be retained and provided with substantial setbacks which preserve the riparian and aquatic values and maintain their value to on-site and off-site wildlife populations.

If appropriate, a jurisdictional delineation of lakes, streams, and associated riparian habitats should be included in the EIR, including a wetland delineation pursuant to the U.S. Fish and Wildlife Service definition (Cowardin 1979) adopted by the Department. Please note that wetland and riparian habitats subject to the Department's authority may extend beyond the jurisdictional limits of the U.S. Army Corps of Engineers.

Future construction projects in the Anza Borrego Desert may require a Streambed Alteration Agreement (SAA) from the Department under Fish and Game Code Section 1600 *et. seq.* The Department would like to discuss with the Department of Parks and Recreation the possibility of developing a master SAA for all projects within the State Park that would divert, obstruct, or affect the natural flow or change the bed, channel, or bank of any river, stream, or lake.

The Department appreciates the opportunity to comment on this NOP. Please contact Libby Lucas of the Department at (858) 467-4230 if you have any questions or comments concerning this letter.

Sincerely,

William E. Tippets
Environmental Program Manager

Literature Cited

Cowardin, Lewis M., V. Carter, G. C. Golet, and E. T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. Fish and Wildlife Service, U.S. Department of the Interior. U. S. Government Printing Office, Washington, D.C.

Attachments

cc: Department of Fish and Game
Files
San Diego

State Clearinghouse
Sacramento

Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities

State of California
THE RESOURCES AGENCY
Department of Fish and Game
December 9, 1983
Revised May 8, 2000

The following recommendations are intended to help those who prepare and review environmental documents determine **when** a botanical survey is needed, **who** should be considered qualified to conduct such surveys, **how** field surveys should be conducted, and **what** information should be contained in the survey report. The Department may recommend that lead agencies not accept the results of surveys that are not conducted according to these guidelines.

1. Botanical surveys are conducted in order to determine the environmental effects of proposed projects on all rare, threatened, and endangered plants and plant communities. Rare, threatened, and endangered plants are not necessarily limited to those species which have been "listed" by state and federal agencies but should include any species that, based on all available data, can be shown to be rare, threatened, and/or endangered under the following definitions:

   A species, subspecies, or variety of plant is "endangered" when the prospects of its survival and reproduction are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, over-exploitation, predation, competition, or disease. A plant is "threatened" when it is likely to become endangered in the foreseeable future in the absence of protection measures. A plant is "rare" when, although not presently threatened with extinction, the species, subspecies, or variety is found in such small numbers throughout its range that it may be endangered if its environment worsens.

   Rare natural communities are those communities that are of highly limited distribution. These communities may or may not contain rare, threatened, or endangered species. The most current version of the California Natural Diversity Database's List of California Terrestrial Natural Communities may be used as a guide to the names and status of communities.

2. It is appropriate to conduct a botanical field survey to determine if, or to the extent that, rare, threatened, or endangered plants will be affected by a proposed project when:

   a. Natural vegetation occurs on the site, it is unknown if rare, threatened, or endangered plants or habitats occur on the site, and the project has the potential for direct or indirect effects on vegetation; or
   b. Rare plants have historically been identified on the project site, but adequate information for impact assessment is lacking.

3. Botanical consultants should possess the following qualifications:

   a. Experience conducting floristic field surveys;
   b. Knowledge of plant taxonomy and plant community ecology;
   c. Familiarity with the plants of the area, including rare, threatened, and endangered species;
   d. Familiarity with the appropriate state and federal statutes related to plants and plant collecting; and,
   e. Experience with analyzing impacts of development on native plant species and communities.

4. Field surveys should be conducted in a manner that will locate any rare, threatened, or endangered species that may be present. Specifically, rare, threatened, or endangered plant surveys should be:

   a. Conducted in the field at the proper time of year when rare, threatened, or endangered species are both evident and identifiable. Usually, this is when the plants are flowering.

When rare, threatened, or endangered plants are known to occur in the type(s) of habitat present in the project area, nearby accessible occurrences of the plants (reference sites) should be observed to determine that the species are identifiable at the time of the survey.

b. Floristic in nature. A floristic survey requires that every plant observed be identified to the extent necessary to determine its rarity and listing status. In addition, a sufficient number of visits spaced throughout the growing season are necessary to accurately determine what plants exist on the site. In order to properly characterize the site and document the completeness of the survey, a complete list of plants observed on the site should be included in every botanical survey report.

c. Conducted in a manner that is consistent with conservation ethics. Collections (voucher specimens) of rare, threatened, or endangered species, or suspected rare, threatened, or endangered species should be made only when such actions would not jeopardize the continued existence of the population and in accordance with applicable state and federal permit requirements. A collecting permit from the Habitat Conservation Planning Branch of DFG is required for collection of state-listed plant species. Voucher specimens should be deposited at recognized public herbaria for future reference. Photography should be used to document plant identification and habitat whenever possible, but especially when the population cannot withstand collection of voucher specimens.

d. Conducted using systematic field techniques in all habitats of the site to ensure a thorough coverage of potential impact areas.

e. Well documented. When a rare, threatened, or endangered plant (or rare plant community) is located, a California Native Species (or Community) Field Survey Form or equivalent written form, accompanied by a copy of the appropriate portion of a 7.5 minute topographic map with the occurrence mapped, should be completed and submitted to the Natural Diversity Database. Locations may be best documented using global positioning systems (GPS) and presented in map and digital forms as these tools become more accessible.

5. Reports of botanical field surveys should be included in or with environmental assessments, negative declarations and mitigated negative declarations, Timber Harvesting Plans (THPs), EIR's, and EIS's, and should contain the following information:

a. Project description, including a detailed map of the project location and study area.
b. A written description of biological setting referencing the community nomenclature used and a vegetation map.
c. Detailed description of survey methodology.
d. Dates of field surveys and total person-hours spent on field surveys.
e. Results of field survey including detailed maps and specific location data for each plant population found. Investigators are encouraged to provide GPS data and maps documenting population boundaries.
f. An assessment of potential impacts. This should include a map showing the distribution of plants in relation to proposed activities.
g. Discussion of the significance of rare, threatened, or endangered plant populations in the project area considering nearby populations and total species distribution.
h. Recommended measures to avoid impacts.
i. A list of all plants observed on the project area. Plants should be identified to the taxonomic level necessary to determine whether or not they are rare, threatened or endangered.
j. Description of reference site(s) visited and phenological development of rare, threatened, or endangered plant(s).
k. Copies of all California Native Species Field Survey Forms or Natural Community Field Survey Forms.
l. Name of field investigator(s).
j. References cited, persons contacted, herbaria visited, and the location of voucher specimens.

ATTACHMENT 2

Sensitivity of Top Priority Rare Natural Communities in Southern California

Sensitivity rankings are determined by the Department of Fish and Game, California Natural Diversity Data Base and based on either number of known occurrences (locations) and/or amount of habitat remaining (acreage). The three rankings used for these top priority rare natural communities are as follows:

S1.# Fewer than 6 known locations and/or on fewer than 2,000 acres of habitat remaining.

S2.# Occurs in 6-20 known locations and/or 2,000-10,000 acres of habitat remaining.

S3.# Occurs in 21-100-known locations and/or 10,000-50,000 acres of habitat remaining.

The number to the right of the decimal point after the ranking refers to the degree of threat posed to that natural community regardless of the ranking. For example:

S1.1 = very threatened
S2.2 = threatened
S3.3 = no current threats known

Sensitivity Rankings (February 1992)

Rank	Community Name
S1.1	Mojave Riparian Forest
	Sonoran Cottonwood Willow Riparian
	Mesquite Bosque
	Elephant Tree Woodland
	Crucifixion Thorn Woodland
	Allthorn Woodland
	Arizonan Woodland
	Southern California Walnut Forest
	Mainland Cherry Forest
	Southern Bishop Pine Forest
	Torrey Pine Forest
	Desert Mountain White Fir Forest
	Southern Dune Scrub
	Southern Coastal Bluff Scrub
	Maritime Succulent Scrub
	Riversidean Alluvial Fan Sage Scrub
	Southern Maritime Chaparral
	Valley Needlegrass Grassland
	Great Basin Grassland
	Mojave Desert Grassland
	Pebble Plains
	Southern Sedge Bog
	Cismontane Alkali Marsh

S1.2	Southern Foredunes
	Mono Pumice Flat
	Southern Interior Basalt Flow Vernal Pool
S2.1	Venturan Coastal Sage Scrub
	Diegan Coastal Sage Scrub
	Riversidean Upland Coastal Sage Scrub
	Riversidean Desert Sage Scrub
	Sagebrush Steppe
	Desert Sink Scrub
	Mafic Southern Mixed Chaparral
	San Diego Mesa Hardpan Vernal Pool
	San Diego Mesa Claypan Vernal Pool
	Alkali Meadow
	Southern Coastal Salt Marsh
	Coastal Brackish Marsh
	Transmontane Alkali Marsh
	Coastal and Valley Freshwater Marsh
	Southern Arroyo Willow Riparian Forest
	Southern Willow Scrub
	Modoc-Great Basin Cottonwood Willow Riparian
	Modoc-Great Basin Riparian Scrub
	Mojave Desert Wash Scrub
	Engelmann Oak Woodland
	Open Engelmann Oak Woodland
	Closed Engelmann Oak Woodland
	Island Oak Woodland
	California Walnut Woodland
	Island Ironwood Forest
	Island Cherry Forest
	Southern Interior Cypress Forest
	Bigcone Spruce-Canyon Oak Forest
S2.2	Active Coastal Dunes
	Active Desert Dunes
	Stabilized and Partially Stabilized Desert Dunes
	Stabilized and Partially Stabilized Desert Sandfield
	Mojave Mixed Steppe
	Transmontane Freshwater Marsh
	Coulter Pine Forest
	Southern California Fellfield
	White Mountains Fellfield
S2.3	Bristlecone Pine Forest
	Limber Pine Forest

APPENDIX 5.5—VISITOR-USE SURVEY